******* QUERY RESULTS *******
(STRUCTURE SEARCH - COMPOUND ON CLAIM 43 & 46)

```
=> d his l21

     (FILE 'HCAPLUS' ENTERED AT 11:47:19 ON 19 MAY 2009)
L21            2 S L19 AND L10

=> d que l21
L3               STR
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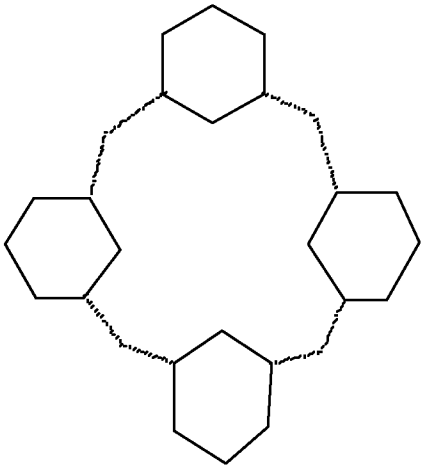
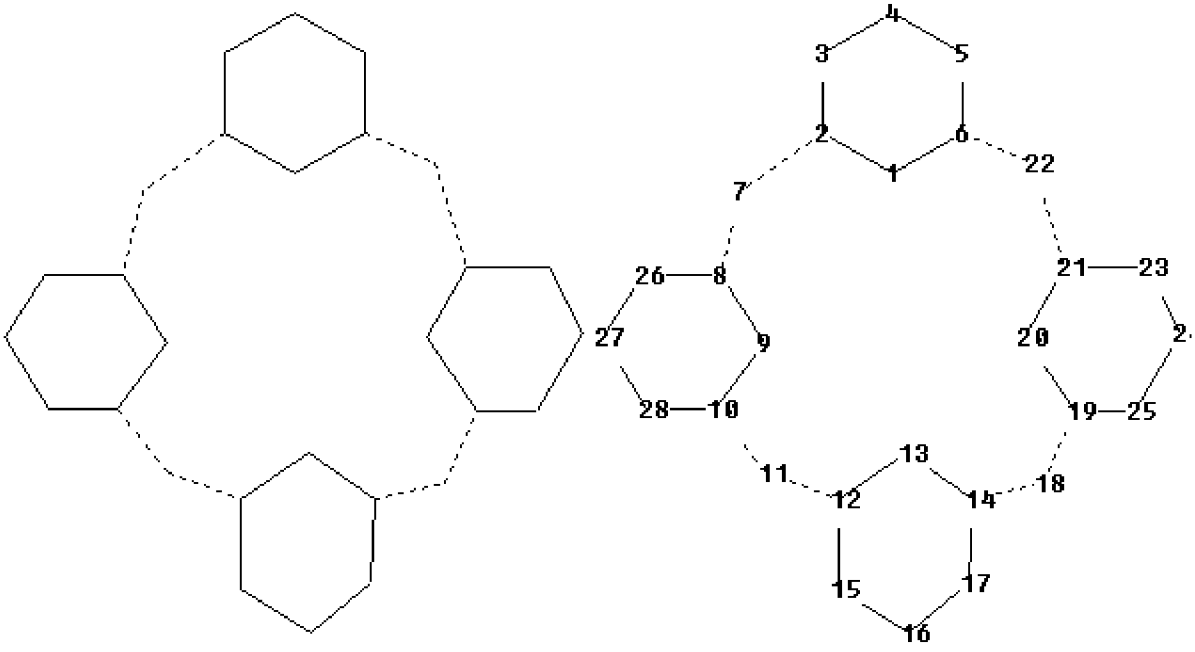


Structure attributes must be viewed using STN Express query preparation:

Uploading L2.str

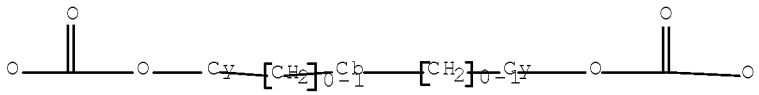


ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
24 25 26 27 28

ring bonds :
1-2 1-6 2-3 2-7 3-4 4-5 5-6 6-22 7-8 8-9 8-26 9-10 10-11 10-28 11-12
12-13 12-15 13-14 14-17 14-18 15-16 16-17 18-19 19-20 19-25 20-21 21-22
21-23 23-24
24-25 26-27 27-28
exact/norm bonds :
2-7 6-22 7-8 10-11 11-12 14-18 18-19 21-22
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 8-9 8-26 9-10 10-28 12-13 12-15 13-14 14-17
15-16 16-17 19-20 19-25 20-21 21-23 23-24 24-25 26-27 27-28
isolated ring systems :
containing 1 :

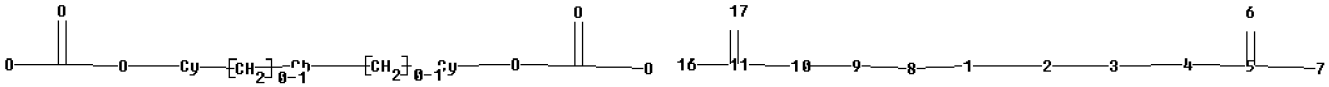
Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom
22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom

L5 17874 SEA FILE=REGISTRY SSS FUL L3
L10 QUE ABB=ON PLU=ON RESIST OR RESIST# OR PHOTORESIST? OR
PHOTO (2A) RESIST?
L16 STR



Structure attributes must be viewed using STN Express query preparation:

Uploading L3.str



chain nodes :
1 2 3 4 5 6 7 8 9 10 11 16 17
chain bonds :
1-2 1-8 2-3 3-4 4-5 5-6 5-7 8-9 9-10 10-11 11-16 11-17
exact/norm bonds :
2-3 3-4 4-5 5-6 5-7 8-9 9-10 10-11 11-16 11-17
exact bonds :
1-2 1-8

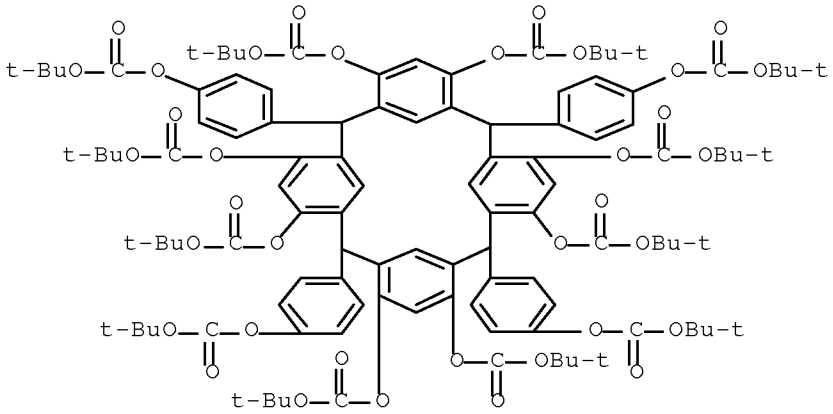
Match level :
1:Atom 2:CLASS 3:Atom 4:CLASS 5:CLASS 6:CLASS 7:CLASS 8:CLASS 9:Atom
10:CLASS
11:CLASS 16:CLASS 17:CLASS
Generic attributes :
3:

Saturation : Unsaturated
9:
Saturation : Unsaturated

L18 2 SEA FILE=REGISTRY SUB=L5 SSS FUL L16
L19 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L18
L21 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 AND L10

=> d l21 1-2 ibib abs hitstr hitind

L21 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2008:534110 HCAPLUS Full-text
DOCUMENT NUMBER: 149:115490
TITLE: Calix[4]resorcinarene derivatives as high-resolution resist materials for supercritical CO2 processing
AUTHOR(S): Felix, Nelson M.; De Silva, Anuja; Ober, Christopher K.
CORPORATE SOURCE: School of Chemical and Biomolecular Engineering, Cornell University, Ithaca, NY, 14853, USA
SOURCE: Advanced Materials (Weinheim, Germany) (2008), 20(7), 1303-1309
CODEN: ADVMEW; ISSN: 0935-9648
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Ultra-high-resolution lithog. resists based on calix[4]resorcinarene derivs. are shown to be compatible with supercrit. CO2 processing upon the incorporation of specific functionalities, as illustrated by the inset to the figure. The compds. show high glass-transition temps., excellent solubility in supercrit. CO2, and good film forming properties, enabling the patterning of line/space features as small as 70 nm (depicted in the figure).
IT 623159-14-8
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(calix[4]resorcinarene derivs. as high-resolution resist materials for supercrit. CO2 processing)
RN 623159-14-8 HCAPLUS
CN Carbonic acid, C,C',C'',C''',C'''',C''''',C'''''',C'''''''-2,8,14,20-tetrakis[4-[[(1,1-dimethylethoxy)carbonyl]oxy]phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl C,C',C'',C''',C'''',C''''',C'''''',C'''''''-octakis(1,1-dimethylethyl) ester (CA INDEX NAME)

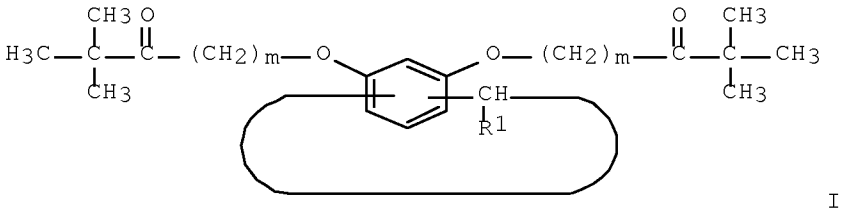


CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST calix resorcinarene deriv high resoln resist supercrit carbon dioxide
IT Photoresists
(calix[4]resorcinarene derivs. as high-resolution resist materials for supercrit. CO2 processing)
IT 124-38-9, Carbon dioxide, uses
RL: NUU (Other use, unclassified); USES (Uses)
(calix[4]resorcinarene derivs. as high-resolution resist materials for supercrit. CO2 processing)
IT 65338-98-9 129831-85-2 176897-13-5 181231-12-9 250715-31-2
623159-14-8 649720-85-4 929207-68-1 929209-81-4
1034474-84-4 1034474-85-5 1034474-86-6
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(calix[4]resorcinarene derivs. as high-resolution resist materials for supercrit. CO2 processing)
IT 1034474-83-3P 1034474-87-7P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(calix[4]resorcinarene derivs. as high-resolution resist materials for supercrit. CO2 processing)
REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2003:879781 HCAPLUS Full-text
DOCUMENT NUMBER: 139:388462
TITLE: tert-Butoxycarbonylalkoxycalixresorcinarenes having high solubility in casting solvents and radiation-sensitive positive resists containing the same
INVENTOR(S): Nishikubo, Tadaomi; Kudo, Hiroto
PATENT ASSIGNEE(S): JSR Ltd., Japan; Kanagawa University
SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003321423	A	20031111	JP 2002-133996	20020509
JP 4076789	B2	20080416		
PRIORITY APPLN. INFO.:			JP 2002-133996	20020509
OTHER SOURCE(S):	MARPAT 139:388462			

GI



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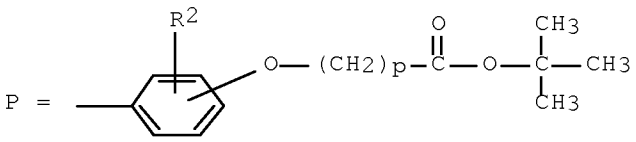
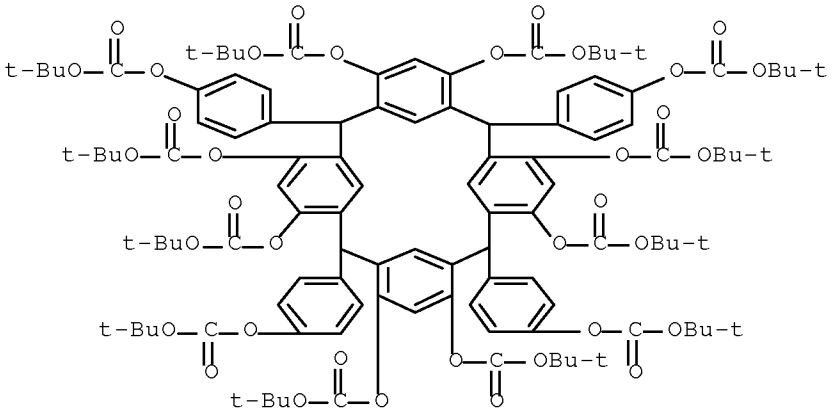


AB The compds. I (R1 = C1-18 alkyl, P; R2 = H, C1-15 alkoxy; m, p = 0-2; n = 4-12) and resists containing I and radiation-sensitive acid generators are sep. claimed. The resists produce high-resolution patterns for fabrication of integrated circuits.

IT 623159-14-8P 623159-15-9P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(tert-butoxycarbonylalkoxycalixresorcinarenes having high solvent solubility
for liable pos.-working radiation-sensitive resists)

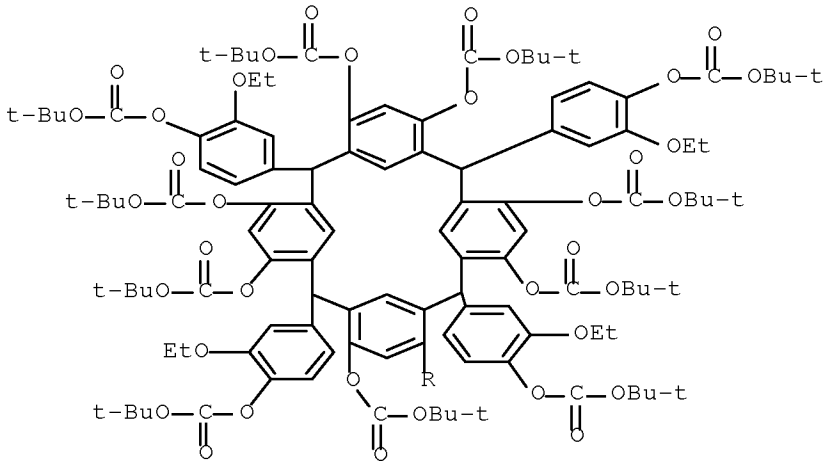
RN 623159-14-8 HCAPLUS

CN Carbonic acid, C,C',C'',C''',C'''',C''''',C'''''',C'''''''-2,8,14,20-tetrakis[4-[[(1,1-dimethylethoxy)carbonyl]oxy]phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl C,C',C'',C''',C'''',C''''',C'''''',C'''''''-octakis(1,1-dimethylethyl) ester (CA INDEX NAME)

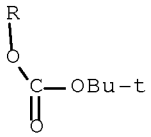


RN 623159-15-9 HCAPLUS
CN Carbonic acid, 2,8,14,20-tetrakis[4-[[(1,1-dimethylethoxy)carbonyl]oxy]-3-ethoxyphenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl octakis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IC ICM C07C069-712
ICS C08G061-02; G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 25
ST butoxycarbonylalkoxy calixresorcinarene chem amplified pos photoresist; radiation sensitive resist
butoxycarbonylalkoxy calixresorcinarene solvent soly
IT Metacyclophanes
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(calixarenes; tert-butoxycarbonylalkoxycalixresorcinarenes having high solvent solubility for liable pos.-working radiation-sensitive resists)
IT Resists
(radiation-sensitive; tert-butoxycarbonylalkoxycalixresorcinarenes having high solvent solubility for liable pos.-working radiation-sensitive resists)
IT Positive photoresists
(tert-butoxycarbonylalkoxycalixresorcinarenes having high solvent solubility
for liable pos.-working radiation-sensitive resists)
IT 74227-35-3
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(acid generators; tert-butoxycarbonylalkoxycalixresorcinarenes having high solvent solubility for liable pos.-working radiation-sensitive resists)
IT 65338-98-9P 176897-13-5P 182370-80-5P 203714-14-1P 623159-00-2P 623159-02-4P 623159-03-5P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(tert-butoxycarbonylalkoxycalixresorcinarenes having high solvent solubility
for liable pos.-working radiation-sensitive resists)
IT 623159-05-7P 623159-06-8P 623159-07-9P 623159-08-0P 623159-10-4P 623159-12-6P 623159-13-7P 623159-14-8P 623159-15-9P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(tert-butoxycarbonylalkoxycalixresorcinarenes having high solvent solubility
for liable pos.-working radiation-sensitive resists)
IT 108-46-3, Resorcinol, reactions 112-44-7, Undecanal 121-32-4, Ethylvanillin 123-08-0, p-Hydroxybenzaldehyde 123-63-7 629-76-5, Pentadecanol 629-90-3, Heptadecanal 1454-85-9, 1-Heptadecanol 2765-11-9, Pentadecanal 5292-43-3, Tert-Butyl bromoacetate 10486-19-8, Tridecanal 24424-99-5, Di-tert-butyl dicarbonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(tert-butoxycarbonylalkoxycalixresorcinarenes having high solvent solubility
for liable pos.-working radiation-sensitive resists)

******* QUERY RESULTS *******
(STRUCTURE AND TEXT SEARCH - COMPOUND IN CLAIM 43 & 46)

```
=> d his l22

     (FILE 'HCAPLUS' ENTERED AT 11:47:19 ON 19 MAY 2009)
L22          20 S L20 NOT L21

=> d que l22
L3               STR
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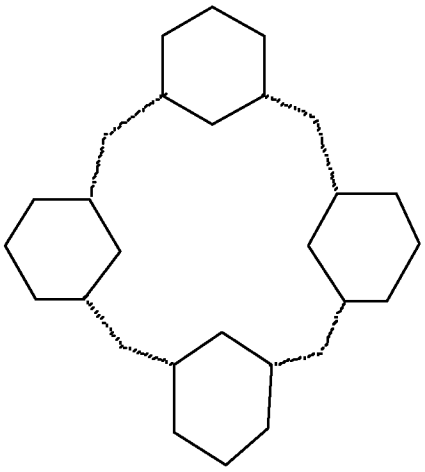

Structure attributes must be viewed using STN Express query preparation:

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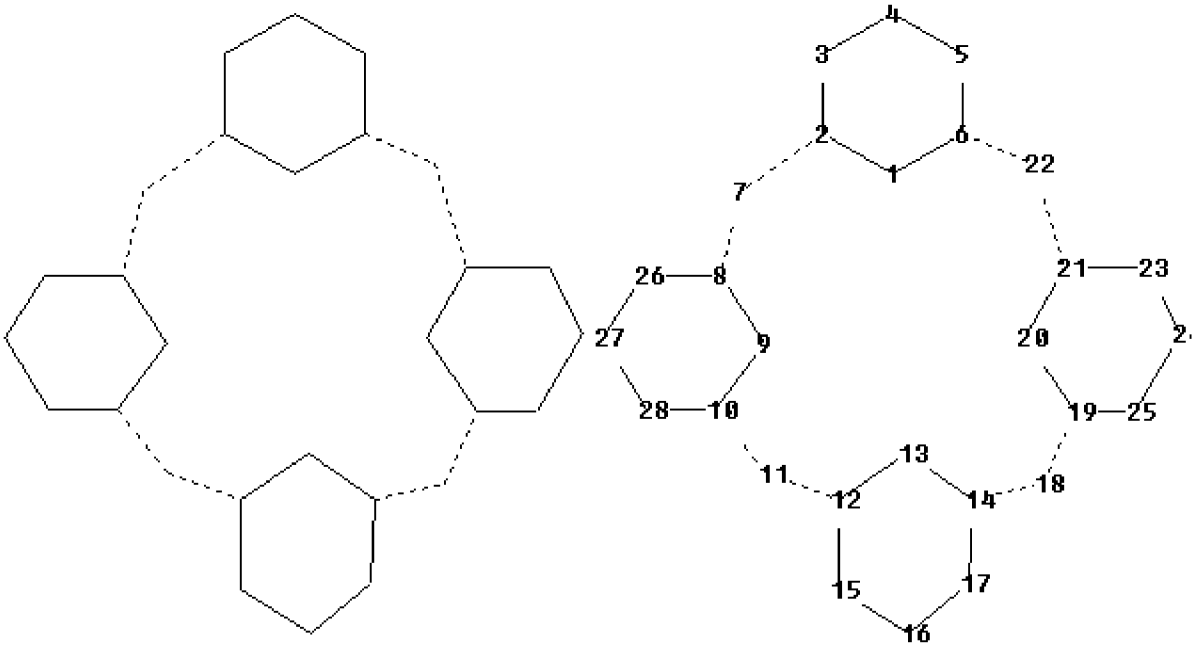
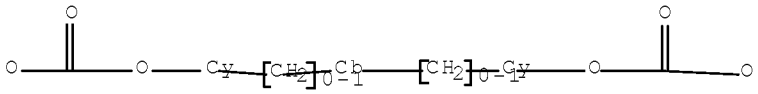


ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
24 25 26 27 28
ring bonds :
1-2 1-6 2-3 2-7 3-4 4-5 5-6 6-22 7-8 8-9 8-26 9-10 10-11 10-28 11-12
12-13 12-15 13-14 14-17 14-18 15-16 16-17 18-19 19-20 19-25 20-21 21-22
21-23 23-24
24-25 26-27 27-28
exact/norm bonds :
2-7 6-22 7-8 10-11 11-12 14-18 18-19 21-22
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 8-9 8-26 9-10 10-28 12-13 12-15 13-14 14-17
15-16 16-17 19-20 19-25 20-21 21-23 23-24 24-25 26-27 27-28
isolated ring systems :
containing 1 :

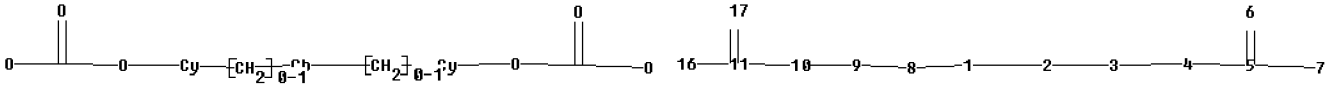
Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom
22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom

L5 17874 SEA FILE=REGISTRY SSS FUL L3
L9 6250 SEA FILE=HCAPLUS ABB=ON PLU=ON L5
L10 QUE ABB=ON PLU=ON RESIST OR RESIST# OR PHOTORESIST? OR
PHOTO (2A) RESIST?
L11 89 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 (L) L10
L12 3317 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 (L) PREP+ALL/RL
L13 3706 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 (L) RACT/RL
L14 33 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 AND L12 AND L13
L15 21 SEA FILE=HCAPLUS ABB=ON PLU=ON L14 AND (AY<2006 OR PY<2006
OR PRY<2006)
L16 STR



Structure attributes must be viewed using STN Express query preparation:

Uploading L3.str



chain nodes :
1 2 3 4 5 6 7 8 9 10 11 16 17
chain bonds :
1-2 1-8 2-3 3-4 4-5 5-6 5-7 8-9 9-10 10-11 11-16 11-17
exact/norm bonds :
2-3 3-4 4-5 5-6 5-7 8-9 9-10 10-11 11-16 11-17
exact bonds :
1-2 1-8

```
Match level :
1:Atom  2:CLASS  3:Atom  4:CLASS  5:CLASS  6:CLASS  7:CLASS  8:CLASS  9:Atom
10:CLASS
11:CLASS  16:CLASS  17:CLASS
Generic attributes :
3:
Saturation             : Unsaturated
9:
Saturation             : Unsaturated



L18           2 SEA FILE=REGISTRY SUB=L5 SSS FUL L16
L19           2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L18
L20          21 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND L10
L21           2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND L10
L22          20 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 NOT L21


=> d l22 1-20 ibib abs hitstr hitind

L22  ANSWER 1 OF 20  HCAPLUS  COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER:         2005:1123873  HCAPLUS  Full-text
DOCUMENT NUMBER:          143:413494
TITLE:                    Calixresorcinarene compounds, photoresist
                          base materials, and compositions thereof
INVENTOR(S):              Ishii, Hirotoshi; Owada, Takanori; Shibasaki, Yuzi;
                          Ueda, Mitsuru
PATENT ASSIGNEE(S):       Idemitsu Kosan Co., Ltd., Japan
SOURCE:                   PCT Int. Appl., 52 pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.        DATE
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     WO 2005097725         A1    20051020    WO 2005-JP6512         20050401 <--
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             GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
             LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
             NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,
             SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
             AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
             EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
             RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
             MR, NE, SN, TD, TG
     EP 1734032            A1    20061220    EP 2005-728046         20050401 <--
         R:  BE, DE, FR, GB
     CN 1938259            A     20070328    CN 2005-80010812       20050401 <--
     US 20070190451        A1    20070816    US 2006-594282         20060926 <--
     KR 2007003980         A     20070105    KR 2006-720033         20060927 <--
PRIORITY APPLN. INFO.:                       JP 2004-111459      A  20040405 <--
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JP 2004-111460 A 20040405 <--
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OTHER SOURCE(S): MARPAT 143:413494
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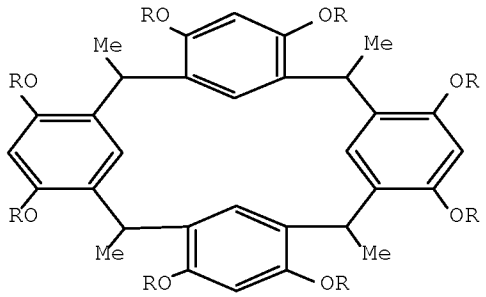
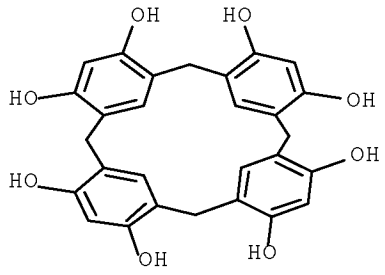


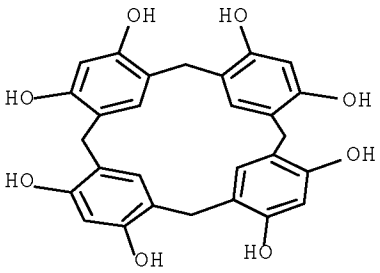
I

AB Disclosed are calixresorcinarene compds. (I: wherein R = h, 1-tetrahydropyranyl, 1-tetrahydrofuranyl, organic moiety having 2-methyl-2-adamantyloxycarbonylmethyl groups, etc.), use of I as resist base material, and resist compns. containing I. The compds. are useful for nanofabrication with extreme UV rays or electron beam.

IT 125748-07-4DP, reaction products with bromoacetic acid esters
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(synthesis and use as radiation resists for nano-fabrication)
RN 125748-07-4 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol (CA INDEX NAME)



IT 125748-07-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and use for radiation resist base materials)
RN 125748-07-4 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol (CA INDEX NAME)



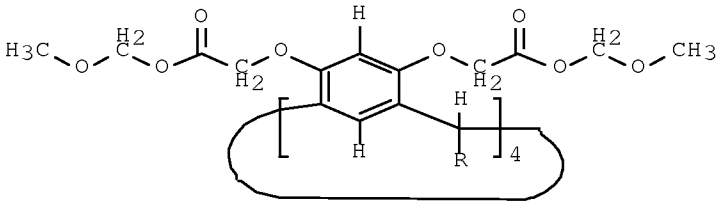
IC ICM C07C067-31
ICS C07C069-712; G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 23
ST calixresorcinarene deriv radiation resist nanofabrication
IT Photoresists
(UV; calixresorcinarene derivs. for resist base materials for nano-fabrication)
IT Electron beam resists
(calixresorcinarene derivs. for resist base materials for nano-fabrication)
IT Lithography
(submicron; radiation resist composition containing calixresorcinarene derivs. for)
IT 280-57-9, 1,4-Diazabicyclo[2.2.2]octane 66003-78-9
RL: TEM (Technical or engineered material use); USES (Uses)
(radiation resist composition containing calixresorcinarene derivs. and)
IT 108-46-3, Resorcinol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with acetaldehyde in synthesis of calixresorcinarene derivs. for radiation resist)
IT 75-07-0, Acetaldehyde, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with resorcinol in synthesis of calixresorcinarene derivs. for radiation resist)
IT 5292-43-3DP, tert-Butyl bromoacetate, reaction product with calixresorcinarene 125748-07-4DP, reaction products with bromoacetic acid esters 625122-37-4DP, reaction product with calixresorcinarene
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(synthesis and use as radiation resists for nano-fabrication)
IT 125748-07-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and use for radiation resist base materials)
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2005:563698 HCAPLUS Full-text
DOCUMENT NUMBER: 143:106359
TITLE: Acid-labile acetal group-containing calix[4]resorcinarenes and chemically amplified

resists containing them
INVENTOR(S): Nishikubo, Tadaomi; Kudo, Hiroto
PATENT ASSIGNEE(S): JSR Ltd., Japan; Kanagawa University
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005170902	A	20050630	JP 2003-416509	20031215 <--

PRIORITY APPLN. INFO.: JP 2003-416509 20031215 <--
GI



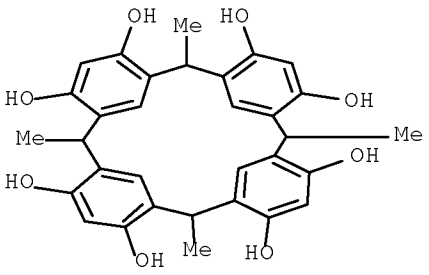
I

AB The calix[4]resorcinarenes are I (R = Me, 4-MeOCH2O2CCH2OC6H4). The resists contain I and photoacid generators. The I show good solubility in casting solvents, and good resistance to heat and alkali developers, resulting in forming high-resolution patterns.

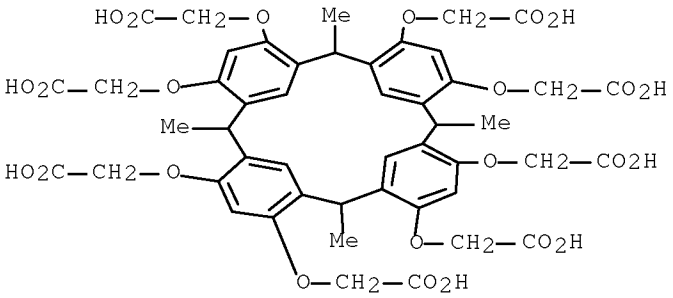
IT 65338-98-9P 130508-38-2P 171799-35-2P
176897-13-5P 710970-56-2P 830329-32-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(acid-labile acetal group-containing calixresorcinarenes for chemical amplified resists)

RN 65338-98-9 HCAPLUS

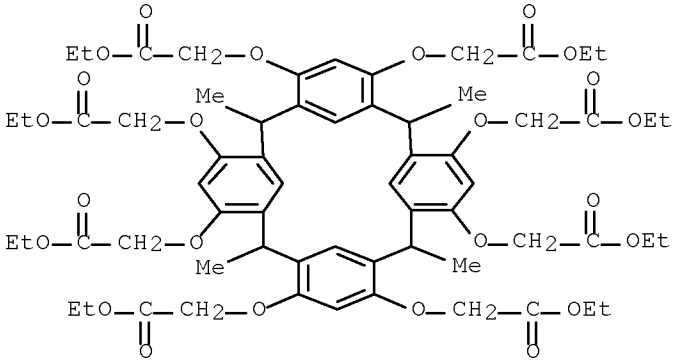
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



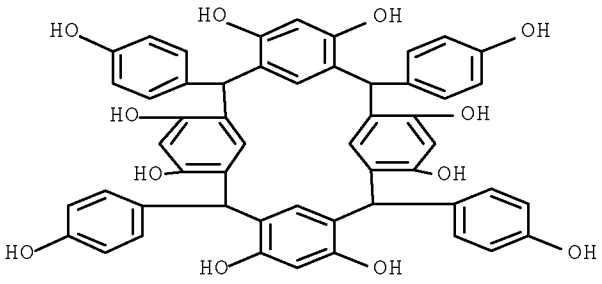
RN 130508-38-2 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxy)]octakis- (CA INDEX NAME)



RN 171799-35-2 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis-, 1,1',1'',1''',1'''',1''''',1'''''',1'''''''-octaethyl ester (CA INDEX NAME)

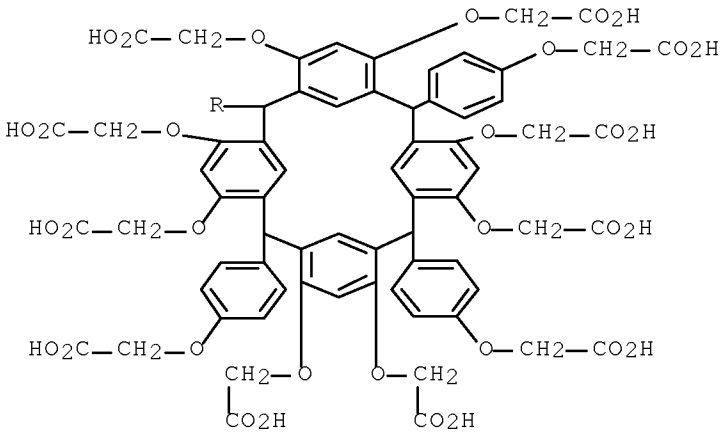


RN 176897-13-5 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetrakis(4-hydroxyphenyl)- (CA INDEX NAME)

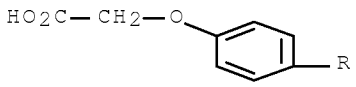


RN 710970-56-2 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetrakis[4-(carboxymethoxy)phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis- (CA INDEX NAME)

PAGE 1-A

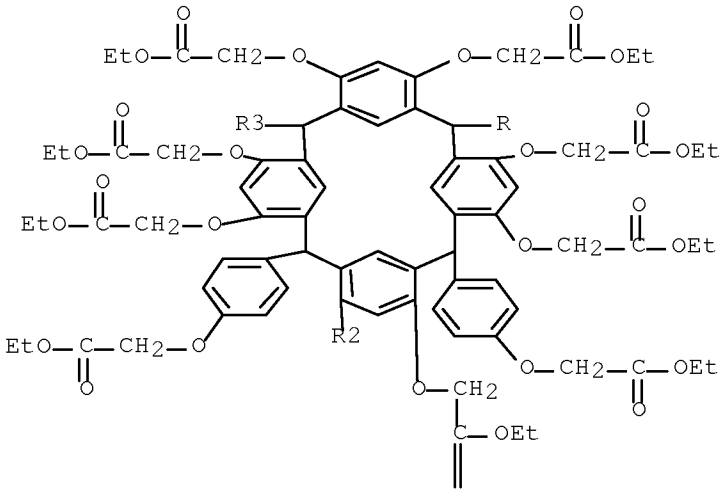


PAGE 2-A

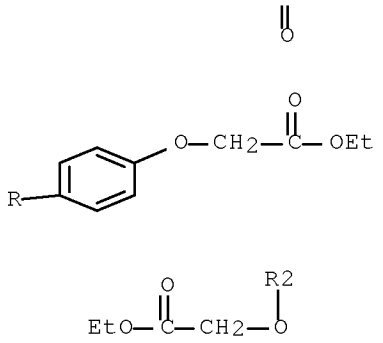


RN 830329-32-3 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetrakis[4-(2-ethoxy-2-oxoethoxy)phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis-, octaethyl ester (CA INDEX NAME)

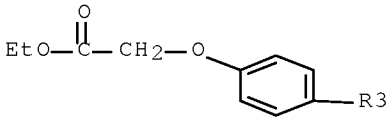
PAGE 1-A



PAGE 2-A

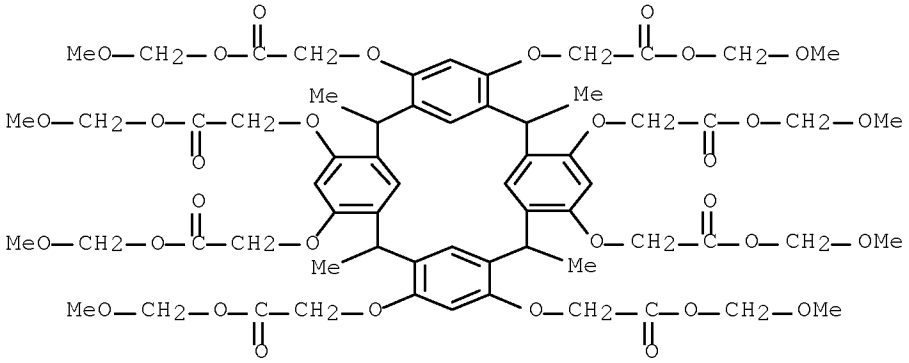


PAGE 3-A



IT 830329-30-1P 830329-31-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acid-labile acetal group-containing calixresorcinarenes for chemical amplified resists)
RN 830329-30-1 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-

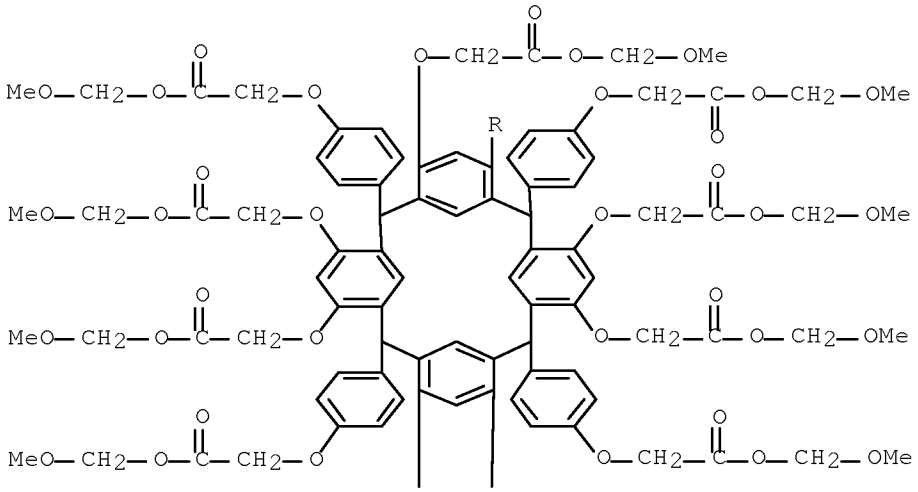
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxy)]octakis-, octakis(methoxymethyl) ester (9CI) (CA INDEX NAME)



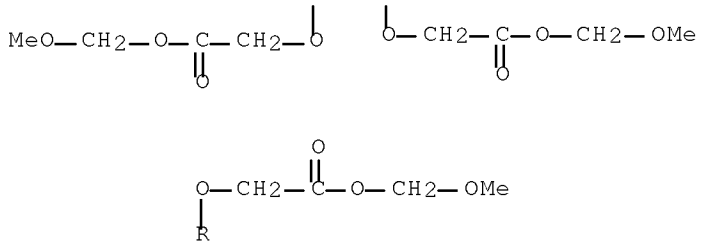
RN 830329-31-2 HCAPLUS

CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetrakis[4-[2-(methoxymethoxy)-2-oxoethoxy]phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis-, octakis(methoxymethyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

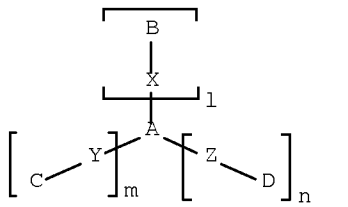


IC ICM C07C069-736
ICS G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 25
ST acetal calixresorcinarene chem amplified resist
IT Resists
(radiation-sensitive; acid-labile acetal group-containing calixresorcinarenes for chemical amplified resists)
IT 65338-98-9P 130508-38-2P 171799-35-2P 176897-13-5P 710970-56-2P 830329-32-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(acid-labile acetal group-containing calixresorcinarenes for chemical amplified resists)
IT 830329-30-1P 830329-31-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acid-labile acetal group-containing calixresorcinarenes for chemical amplified resists)
IT 105-36-2, Ethyl bromoacetate 107-30-2, Chloromethyl methyl ether 108-46-3, Resorcinol, reactions 123-08-0, p-Hydroxybenzaldehyde 123-63-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(acid-labile acetal group-containing calixresorcinarenes for chemical amplified resists)

L22 ANSWER 3 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2005:253630 HCAPLUS Full-text
DOCUMENT NUMBER: 142:345148
TITLE: Photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV
INVENTOR(S): Ueda, Mitsuru; Ishii, Hirohisa
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005075767	A	20050324	JP 2003-307443	20030829 <--

PRIORITY APPLN. INFO.: JP 2003-307443 20030829 <--
OTHER SOURCE(S): MARPAT 142:345148
GI

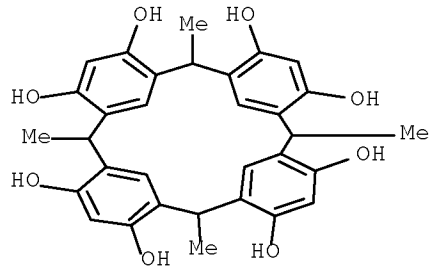


I

AB The title photoresist comprises an extreme UV light-reactive organic compound represented by I (A = C1-50-aliphatic, C6-50-aromatic, etc.; B, C, D = extreme UV light-reactive group-containing C1-50-aliphatic, C6-50-aromatic, etc.; X, Y, Z = single bond, ether linkage; l, m, n = 0-5) and ≤10 ppm of basic impurities. The chemical amplified photoresist composition is sensitive to extreme UV and electron beam.

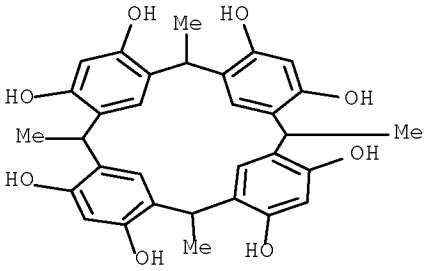
IT 65338-98-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(photoresist preparation; photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV)

RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



IT 65338-98-9DP, reaction product with tert-Butylbromoacetate
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoresist preparation; photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV)

RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



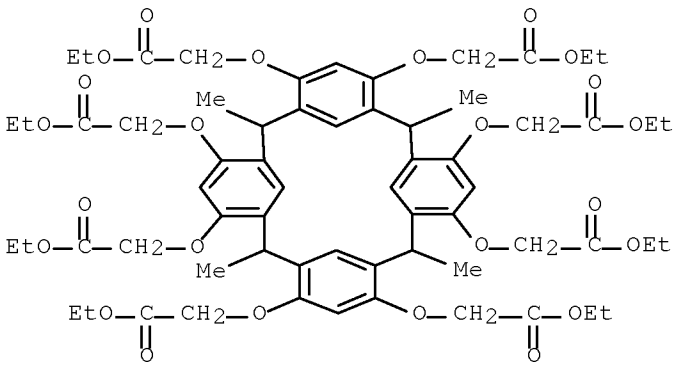
IC ICM C07C069-736
ICS C07C067-56; G03F007-004; G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 73, 76
ST photoresist purifn compn extreme UV lithog
IT Photoresists
(photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV)
IT 282713-83-1
RL: CAT (Catalyst use); USES (Uses)
(photoacid generator; photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV)
IT 75-07-0, Acetaldehyde, reactions 108-46-3, Resorcinol, reactions 5292-43-3D, tert-Butylbromoacetate, reaction products with C-Methylcalix[4]resorcinarene.
RL: RCT (Reactant); RACT (Reactant or reagent)
(photoresist preparation; photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV)
IT 65338-98-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(photoresist preparation; photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV)
IT 65338-98-9DP, reaction product with tert-Butylbromoacetate
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoresist preparation; photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV)
IT 24203-36-9, Potassium ion, processes
RL: REM (Removal or disposal); PROC (Process)
(photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV)
IT 97-64-3, Ethyl lactate 109-86-4, 2-Methoxyethanol
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; photoresist, its purification and photoresist composition showing improved sensitivity, contrast, and line-edge-roughness to extreme UV)

L22 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:1038016 HCAPLUS Full-text
DOCUMENT NUMBER: 142:165419
TITLE: Synthesis of novel chemically amplified materials based on calix[4]arene derivatives with acetal moieties
AUTHOR(S): Kudo, Hiroto; Mitani, Kouji; Koyama, Syuhei; Nishikubo, Tadatomi
CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Engineering, Kanagawa University, Yokohama, 221-8686, Japan
SOURCE: Bulletin of the Chemical Society of Japan (2004), 77(11), 2109-2114
CODEN: BCSJA8; ISSN: 0009-2673
PUBLISHER: Chemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:165419

AB The synthesis and photoinduced deprotection reaction of calix[4]resorcinarene derivs. with pendant acetal moieties were examined C-methyl[(methoxymethylcarbonyl)oxy]calix[4]resorcinarene (CRA-Acetal) and C-4-hydroxyphenyl[(methoxymethylcarbonyl)oxy]calix[4]resorcinarene (CRAph-Acetal) were prepared from C-methylcalix[4]resorcinarene (CRA) and C-4-hydroxyphenylcalix[4]resorcinarene (CRAph). The synthesized CRA-Acetal and CRAph-Acetal had good solubilities, good film-forming properties, and high thermal stabilities. The photoinduced deprotection reaction of CRA-Acetal and CRAph-Acetal was examined in the presence of bis[4-(diphenylsulfonio)phenyl]sulfide (DPSP) as a photoacid generator in the film state upon UV irradiation It was found that the deprotection reaction of acetal groups of CRA-Acetal and CRAph-Acetal proceeded smoothly without further heating to produce the corresponding calixarene derivs., CRA-COOH and CRAph-COOH with carboxylic acid groups.

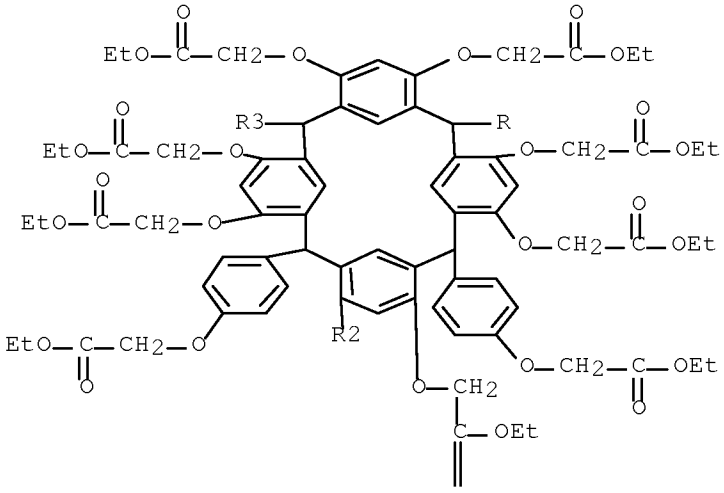
IT 171799-35-2P 830329-32-3P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(hydrolysis in aqueous KOH solution)

RN 171799-35-2 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis-, 1,1',1'',1''',1'''',1''''',1'''''',1'''''''-octaethyl ester (CA INDEX NAME)

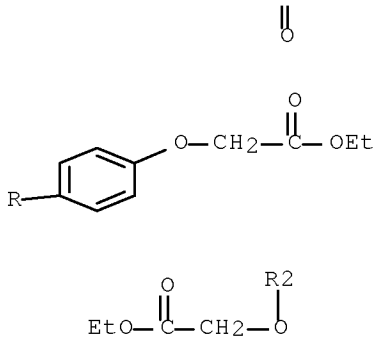


RN 830329-32-3 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetrakis[4-(2-ethoxy-2-oxoethoxy)phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis-, octaethyl ester (CA INDEX NAME)

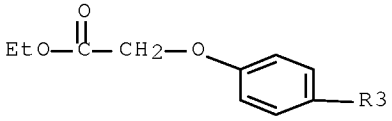
PAGE 1-A



PAGE 2-A

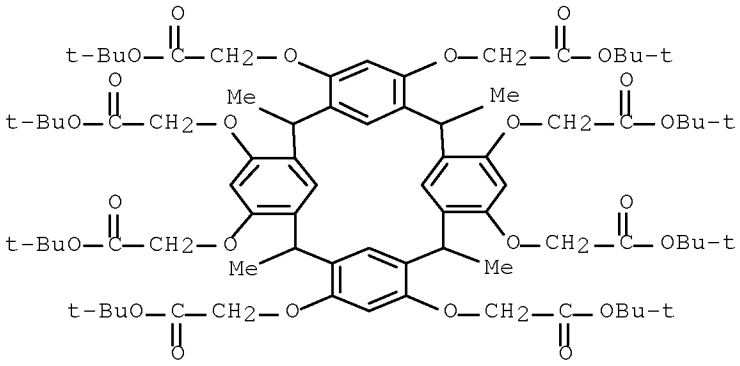


PAGE 3-A



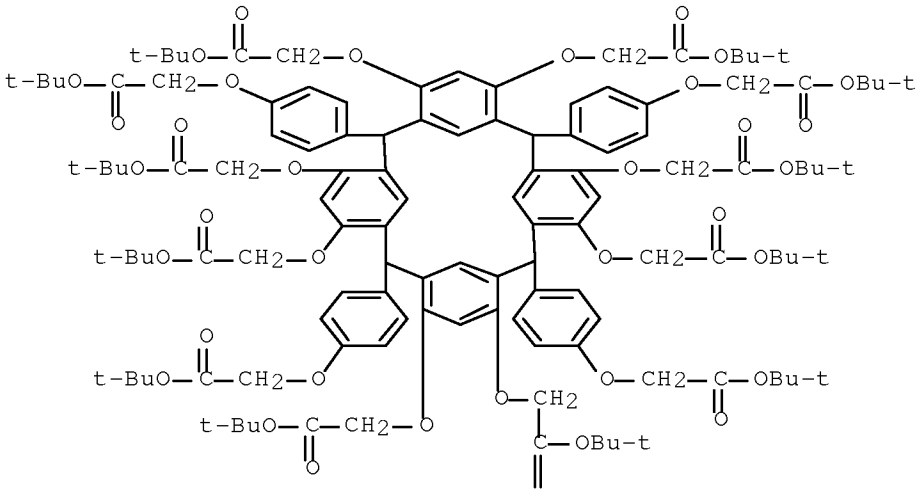
IT 623159-10-4 623159-12-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(photoinduced deprotection of calix[4]resorcinarene derivs. with pendant acetal groups for chemical amplified photoresist applications)

RN 623159-10-4 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxy)]octakis-, octakis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



RN 623159-12-6 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetrakis[4-[2-(1,1-dimethylethoxy)-2-oxoethoxy]phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis-, octakis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

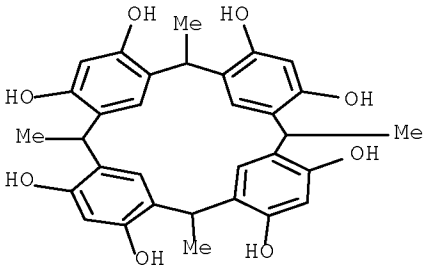
PAGE 1-A



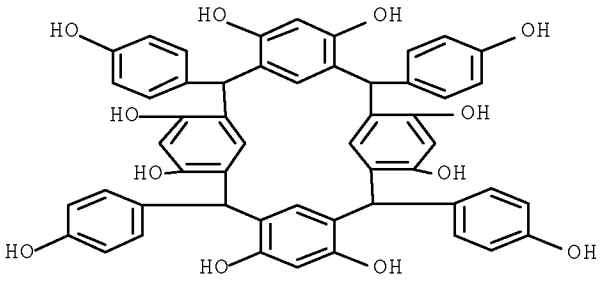
PAGE 2-A

IT 65338-98-9 176897-13-5
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(reaction with Et bromoacetate using K2CO3 in presence of TBAB as phase-transfer catalyst)

RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



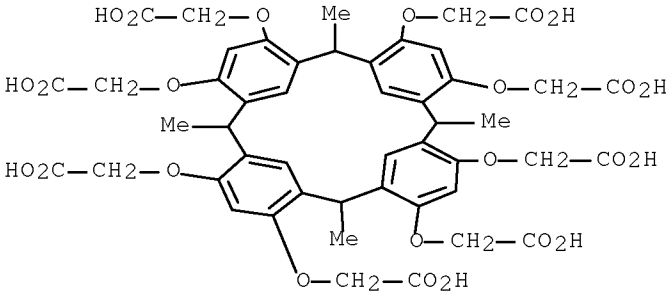
RN 176897-13-5 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetrakis(4-hydroxyphenyl)- (CA INDEX NAME)



IT 130508-38-2P 710970-56-2P 830329-30-1P
830329-31-2P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation)
; PREP (Preparation); RACT (Reactant or reagent)
(synthesis and photoinduced deprotection of calix[4]resorcinarene derivs. with pendant acetal groups for chemical amplified photoresist applications)

RN 130508-38-2 HCAPLUS

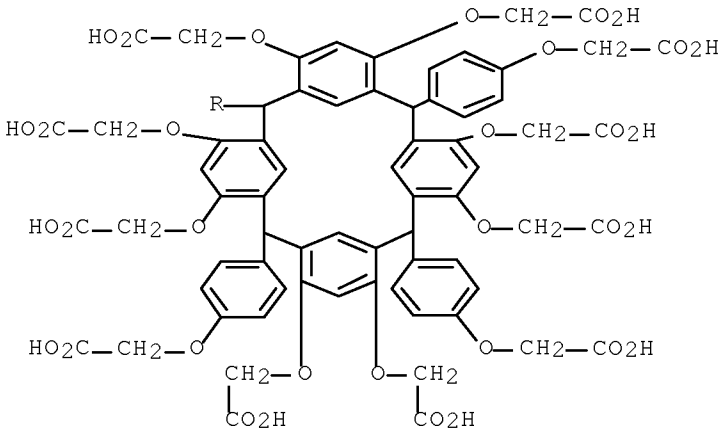
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxy)]octakis- (CA INDEX NAME)



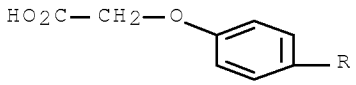
RN 710970-56-2 HCAPLUS

CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetrakis[4-(carboxymethoxy)phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis- (CA INDEX NAME)

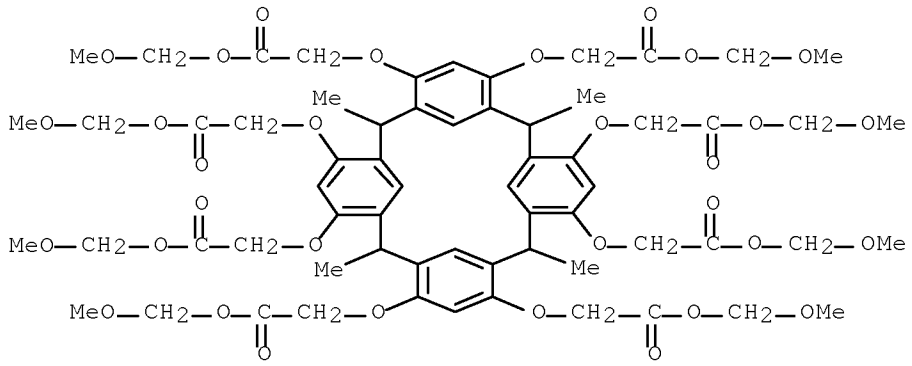
PAGE 1-A



PAGE 2-A



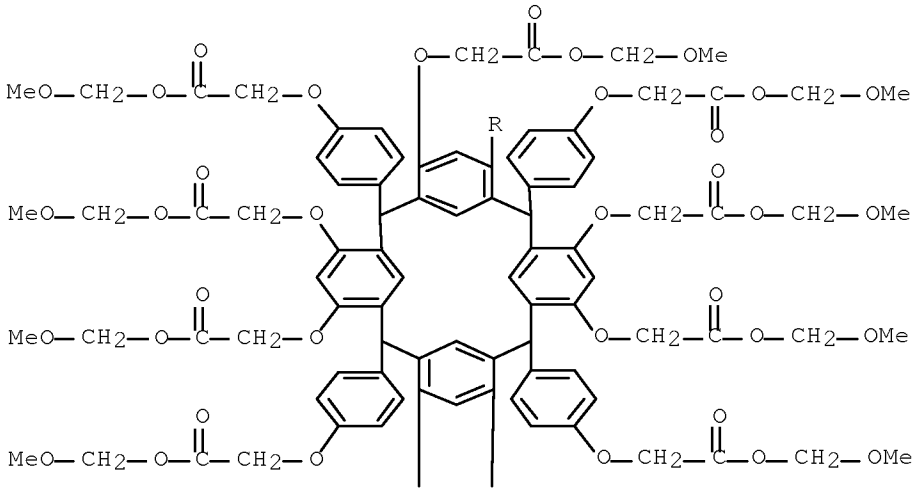
RN 830329-30-1 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxy)]octakis-, octakis(methoxymethyl) ester (9CI) (CA INDEX NAME)



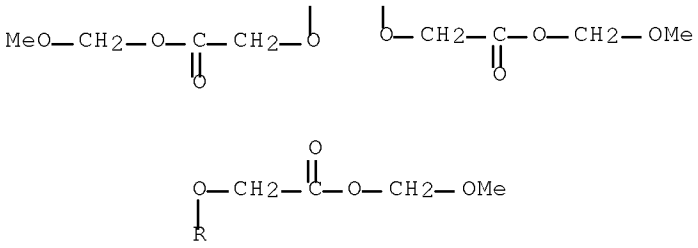
RN 830329-31-2 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetrakis[4-[2-(methoxymethoxy)-2-oxoethoxy]phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-

1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis-, octakis(methoxymethyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST synthesis photoinduced deprotection calixresorcinarene acetal deriv chem amplified photoresist

IT Metacyclophanes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(calixarenes; synthesis and photoinduced deprotection of calix[4]resorcinarene derivs. with pendant acetal groups for chemical amplified photoresist applications)

IT Positive photoresists
(chemical amplified; synthesis and photoinduced deprotection of calix[4]resorcinarene derivs. with pendant acetal groups for chemical amplified photoresist applications)

IT Acetyl group

Photolysis
(photoinduced deprotection of calix[4]resorcinarene derivs. with pendant acetal groups for chemical amplified photoresist applications)

IT Films
(solubility and film-forming properties of calix[4]resorcinarene and its derivs. in relation to development of photoresists)

IT Thermal stability
(synthesis and photoinduced deprotection of calix[4]resorcinarene derivs. with pendant acetal groups for chemical amplified photoresist applications)

IT 171799-35-2P 830329-32-3P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(hydrolysis in aqueous KOH solution)

IT 74227-35-3, Bis[4-(diphenylsulfonio)phenyl]sulfide bis[hexafluorophosphate
RL: PRP (Properties)
(photoacid generator; photoinduced deprotection of calix[4]resorcinarene derivs. with pendant acetal groups for chemical amplified photoresist applications)

IT 623159-10-4 623159-12-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(photoinduced deprotection of calix[4]resorcinarene derivs. with pendant acetal groups for chemical amplified photoresist applications)

IT 65338-98-9 176897-13-5
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(reaction with Et bromoacetate using K2CO3 in presence of TBAB as phase-transfer catalyst)

IT 64-17-5, Ethanol, uses 67-63-0, 2-Propanol, uses 67-64-1, Acetone, uses 67-66-3, Chloroform, uses 67-68-5, DMSO, uses 68-12-2, DMF, uses 75-59-2, Tetramethylammonium hydroxide 97-64-3, Ethyl lactate 109-99-9, THF, uses 110-43-0, 2-Heptanone 110-54-3, Hexane, uses 110-82-7, Cyclohexane, uses 123-91-1, Dioxane, uses 127-19-5, Dimethyl acetamide 141-78-6, Ethyl acetate, uses 872-50-4, N-Methylpyrrolidone, uses 7732-18-5, Water, uses 84540-57-8, Propylene glycol monomethyl ether acetate
RL: NUU (Other use, unclassified); USES (Uses)
(solubility and film-forming properties of calix[4]resorcinarene and its derivs. in relation to development of photoresists)

IT 130508-38-2P 710970-56-2P 830329-30-1P 830329-31-2P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and photoinduced deprotection of calix[4]resorcinarene derivs. with pendant acetal groups for chemical amplified photoresist applications)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:419455 HCAPLUS Full-text
DOCUMENT NUMBER: 142:143920
TITLE: A chemically amplified calix[4]arene-based electron-beam resist
AUTHOR(S): Sailer, H.; Ruderisch, A.; Kern, D. P.; Schurig, V.
CORPORATE SOURCE: Institute of Applied Physics, University of Tuebingen, Tuebingen, 72076, Germany
SOURCE: Microelectronic Engineering (2004), 73-74, 228-232

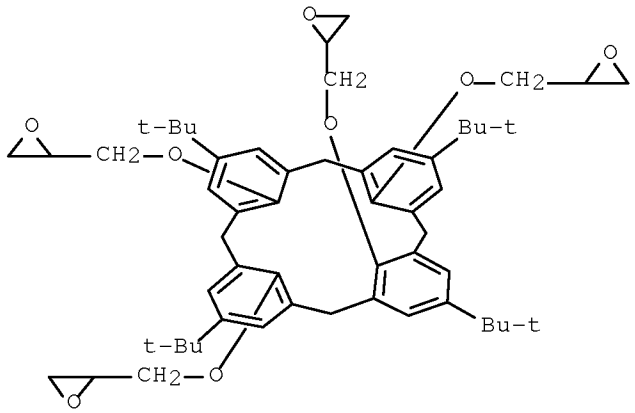
CODEN: MIENEF; ISSN: 0167-9317
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The concept of chemical amplification via cationic polymerization was applied to the novel class of calixarenes as nonpolymeric neg.-tone electron-beam resist materials for the first time. By using a calix[4]arene bearing epoxide residues and a photoacid generating triphenylsulfonium salt (PAG) as nonpolymeric chemical amplified resist system (npCAR) a tremendous increase of resist sensitivity was achieved. The high resolution capability of this npCAR is promising. Etching resistances of the npCAR and the commonly used novolak resins are comparable.

IT 140424-85-7P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(neg. chemical amplified electron-beam resist containing calix[4]arene bearing epoxide residues and triphenylsulfonium salt)

RN 140424-85-7 HCAPLUS

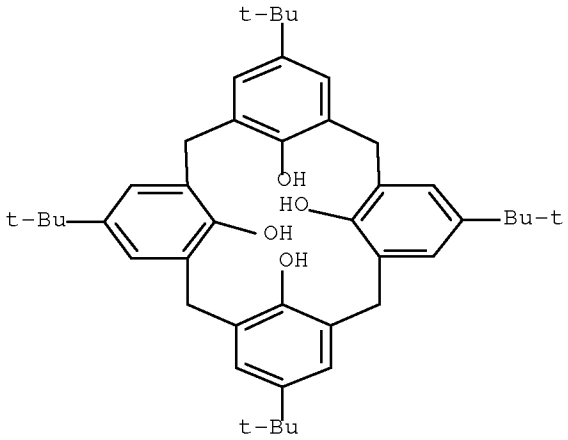
CN Oxirane, 2,2',2'',2'''-[[5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxymethylene)]tetrakis- (CA INDEX NAME)



IT 60705-62-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with (±)-epichlorohydrin in presence of Cs2CO3)

RN 60705-62-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-tetrakis(1,1-dimethylethyl)- (CA INDEX NAME)



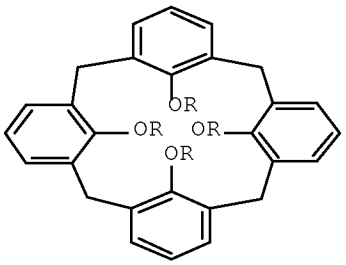
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST calixarene based neg chem amplified electron beam lithog resist
IT Thickness
(neg. chemical amplified electron-beam resist containing calix[4]arene bearing epoxide residues and triphenylsulfonium salt)
IT Electron beam resists
(neg.-working, chemical amplified; neg. chemical amplified electron-beam resist containing calix[4]arene bearing epoxide residues and triphenylsulfonium salt)
IT 108-10-1, 4-Methylpentan-2-one
RL: NUU (Other use, unclassified); USES (Uses)
(developer; neg. chemical amplified electron-beam resist containing calix[4]arene bearing epoxide residues and triphenylsulfonium salt)
IT 140424-85-7P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(neg. chemical amplified electron-beam resist containing calix[4]arene bearing epoxide residues and triphenylsulfonium salt)
IT 60705-62-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with (±)-epichlorohydrin in presence of Cs2CO3)
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 6 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:326420 HCAPLUS Full-text
DOCUMENT NUMBER: 140:339079
TITLE: Preparation of chloromethylated calix[4]arene mixtures for negative electron beam resists
INVENTOR(S): Momota, Junji; Oshima, Eiji
PATENT ASSIGNEE(S): Tokuyama Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

JP 2004123586	A	20040422	JP 2002-288430	20021001 <--
JP 4118645	B2	20080716		

PRIORITY APPLN. INFO.: JP 2002-288430 20021001 <--
OTHER SOURCE(S): CASREACT 140:339079; MARPAT 140:339079
GI

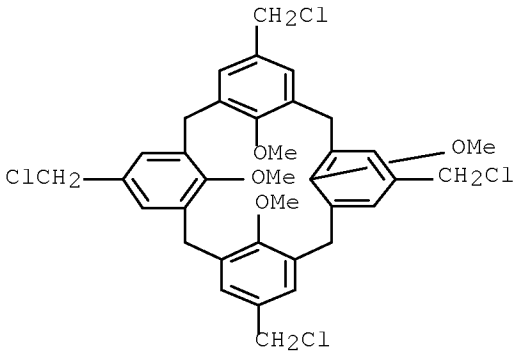


I

AB Calix[4]arenes I [R = (un)substituted C1-10 alkyl] are chloromethylated by HCl and HCHO in reaction systems containing 10-30 weight% H2O to give mixts. of tetrakis- and tris(chloromethylated) I. I (R = Me) (1.21 g) was treated with a mixture of 1,4-dioxane, AcOH, HCl, H3PO4, and 16 weight% H2O under reflux for 2 h to give 0.85 g 51:41 mixture of 5,11,17,23-tetrakis(chloromethyl)-I (R = Me) and 5,11,17-tris(chloromethyl)-I (R = Me).

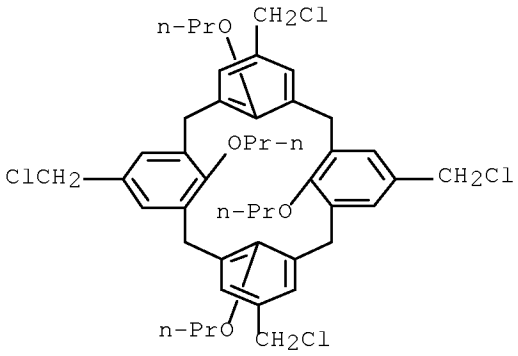
IT 139934-98-8P 325814-49-1P 673458-26-9P
680223-95-4P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of chloromethylated calix[4]arene mixts. for neg. electron beam resists)

RN 139934-98-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



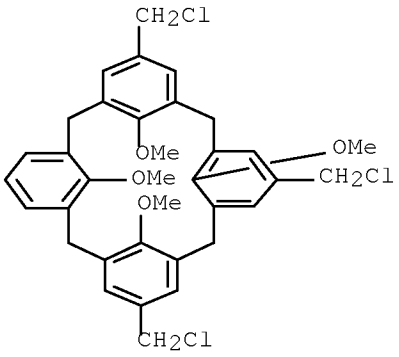
RN 325814-49-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



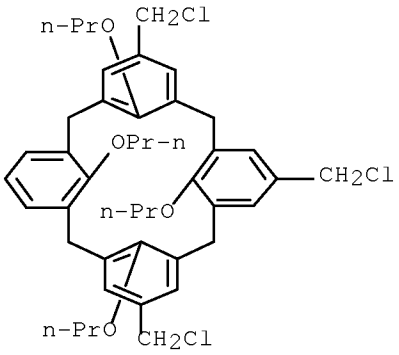
RN 673458-26-9 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17-tris(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)

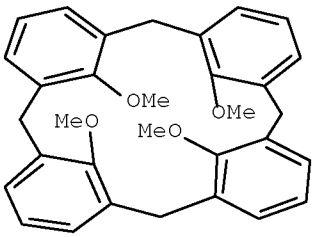


RN 680223-95-4 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17-tris(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



IT 99095-68-8 147782-22-7,
25,26,27,28-Tetrapropoxycalix[4]arene
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of chloromethylated calix[4]arene mixts. for neg. electron beam
resists)
RN 99095-68-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 25,26,27,28-tetramethoxy- (CA INDEX NAME)

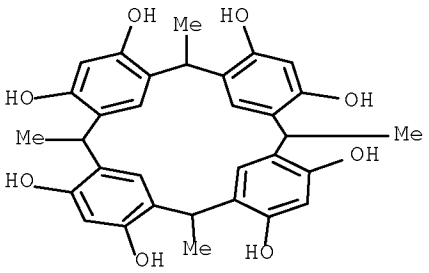


RN 147782-22-7 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 25,26,27,28-tetrapropoxy- (CA INDEX NAME)

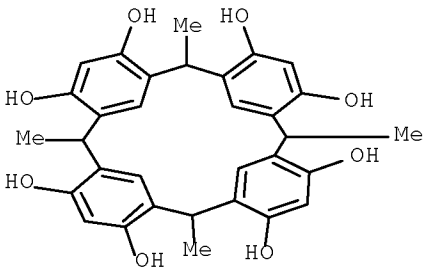
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM C07C041-22
ICS C07C043-225
CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 74
ST calixarene chloromethylation water hydrochloric acid formaldehyde; neg electron beam resist calixarene chloromethylated
IT Electron beam resists
(neg.-working; preparation of chloromethylated calix[4]arene mixts. for neg.
electron beam resists)
IT Chloromethylation
(preparation of chloromethylated calix[4]arene mixts. for neg. electron beam

resists)
IT 7732-18-5, Water, uses
RL: NUU (Other use, unclassified); USES (Uses)
(concentration control; preparation of chloromethylated calix[4]arene mixts. for
neg. electron beam resists)
IT 139934-98-8P 325814-49-1P 673458-26-9P
680223-95-4P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of chloromethylated calix[4]arene mixts. for neg. electron beam
resists)
IT 99095-68-8 147782-22-7,
25,26,27,28-Tetrapropoxycalix[4]arene
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of chloromethylated calix[4]arene mixts. for neg. electron beam
resists)

L22 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:140951 HCAPLUS Full-text
DOCUMENT NUMBER: 141:44772
TITLE: A new positive-working alkaline developable photoresist based on partially O-tert-butoxycarbonylmethylated-tetra-C-methylcalix[4]resorcinarene and a photoacid generator
AUTHOR(S): Iimori, H.; Shibasaki, Y.; Ueda, M.; Ishii, H.
CORPORATE SOURCE: Department of Organic and Polymeric Materials, Graduate School of Science and Engineering, Tokyo Institute of Technology, Tokyo, 152-8552, Japan
SOURCE: Journal of Photopolymer Science and Technology (2003), 16(5), 685-690
CODEN: JSTEEW; ISSN: 0914-9244
PUBLISHER: Technical Association of Photopolymers, Japan
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new pos.-working low-mol.-weight photoresist has been developed. The photoresist consisted of the matrix, tetra-C-methylcalix[4]resorcinarene (p-t-BM-C4-R) in which the OH groups were protected with tert-butoxycarbonylmethyl groups (protecting ratio: 27-60%), and a photoacid generator (PAG), 5-(propylsulfonyloxyimino-5H-thiophen-2-ylidene)-2- methylphenylacetonitrile (PTMA). The p-t-BM-C4-R (protecting ratio: 40%) containing PTMA (2 wt%) showed a high sensitivity (10 mJ/cm2) and a contrast 11 after the irradiation with g-line, post-exposure baking at 120°C at 60 s, and developing with 2.38 wt% tetramethylammonium hydroxide aqueous solution (TMAHaq) at 20°C for 10 s.
IT 65338-98-9DP, tert-butoxycarbonylmethylated
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working alkaline developable photoresist based on partially O-tert-butoxycarbonylmethylatedtetra-C-methylcalix[4]resorcinarene)
RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



IT 65338-98-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of partially O-tert-butoxycarbonylmethylatedtetra-C-methylcalix[4]resorcinarene)
RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



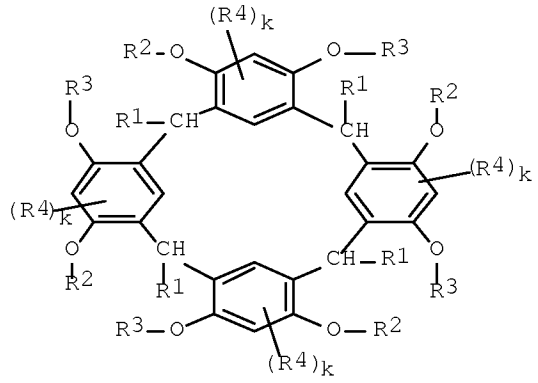
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST pos photoresist butoxycarbonylmethylated methylcalix resorcinarene
IT Photolithography
Positive photoresists
Solubility
Thermal stability
(pos.-working alkaline developable photoresist based on partially O-tert-butoxycarbonylmethylatedtetra-C-methylcalix[4]resorcinarene)
IT 65338-98-9DP, tert-butoxycarbonylmethylated
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working alkaline developable photoresist based on partially O-tert-butoxycarbonylmethylatedtetra-C-methylcalix[4]resorcinarene)
IT 282713-83-1
RL: TEM (Technical or engineered material use); USES (Uses)
(pos.-working alkaline developable photoresist based on partially O-tert-butoxycarbonylmethylatedtetra-C-methylcalix[4]resorcinarene)
IT 5292-43-3, tert-Butyl bromoacetate 65338-98-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of partially O-tert-butoxycarbonylmethylatedtetra-C-

methylcalix[4]resorcinarene)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 8 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:57508 HCAPLUS Full-text
DOCUMENT NUMBER: 140:112493
TITLE: Calix resorcinarene derivatives soluble in various solvents and their heat-resistant flat films free from crystallization
INVENTOR(S): Momota, Junji; Onishi, Hironori
PATENT ASSIGNEE(S): Tokuyama Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 30 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004018421	A	20040122	JP 2002-173350	20020613 <--
PRIORITY APPLN. INFO.:			JP 2002-173350	20020613 <--

OTHER SOURCE(S): MARPAT 140:112493
GI



I

AB Calix resorcinarene derivs., useful for neg. electron beam resist materials, are represented by general formula I [R1-R3 = H, group shown as (a) C1-20 alkyl, amino, OH, aryl, aryloxy, etc., (b) C6-20 aryl, halo, amino, OH, aryl, aryloxy, etc., (c) C2-20 saturated aliphatic acyl, aromatic acyl, (d) YZ (Y = bond, divalent organic group; Z = ethenyl, halogenoalkyl); R2 ≠ R3 ≠ H; R4 = C1-20 (un)substituted alkyl halo; k = 0, 1, 2]. Thus, 0.6 mol resorcinol was reacted with 0.2 mol paraformaldehyde to yield 5 g of a white solid of an intermediate, then it (3.67 mmol) was esterified with 33 mmol methacryloyl chloride to yield 2.7 g of a white solid of I [R1 = Me, R2 = R3 = C(O)CMe:CH2; k = 0 (II)] showing good solubility in various solvents. Propylene glycol monomethyl ether solution of II gave a flat film free from crystals by spin coating on glass plate followed by drying. A mixture comprising II 50, tetraethylene glycol dimethacrylate 45, α-methylstyrene 5, α-methylstyrene dimer 1, and Perbutyl ND (tert-butylperoxy neodecanoate) was cast-polymerized

while heating up from 30° to 90° to give 2-mm thick test pieces showing high hardness and thermal stability.

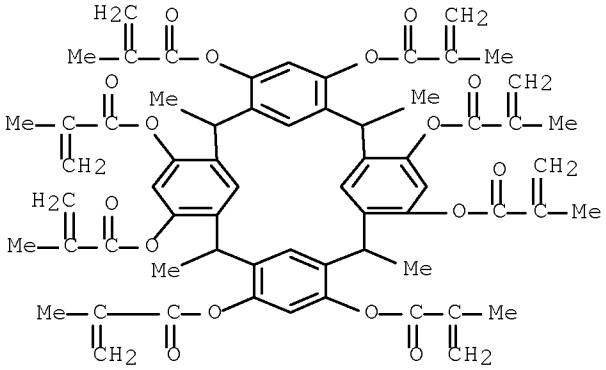
IT 646475-35-6P
RL: IMF (Industrial manufacture); PREP (Preparation)
(solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB resist materials and their heat-resistant crystal-free flat films)

RN 646475-35-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

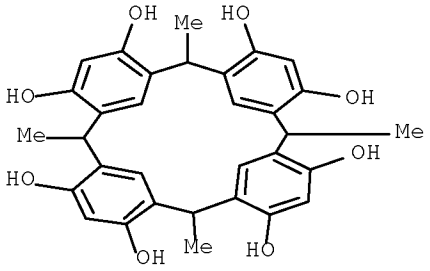
CRN 646474-80-8
CMF C64 H64 O16



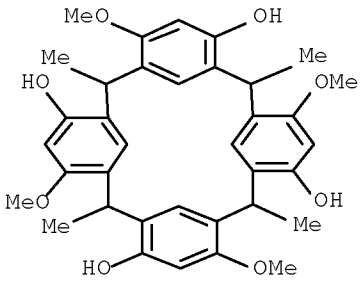
IT 65338-98-9P 646475-05-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB resist materials and their heat-resistant crystal-free flat films)

RN 65338-98-9 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)

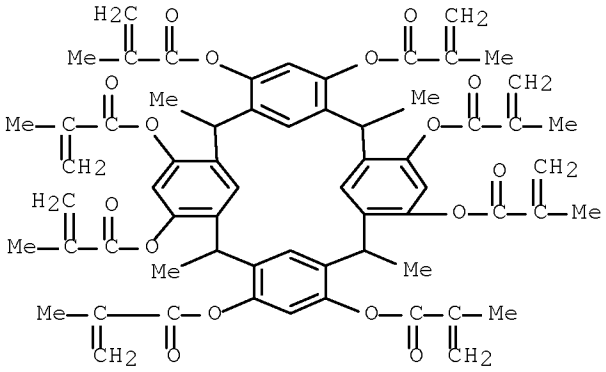


RN 646475-05-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,10,16,22-tetrol, 6,12,18,24-tetramethoxy-2,8,14,20-tetramethyl- (CA INDEX NAME)



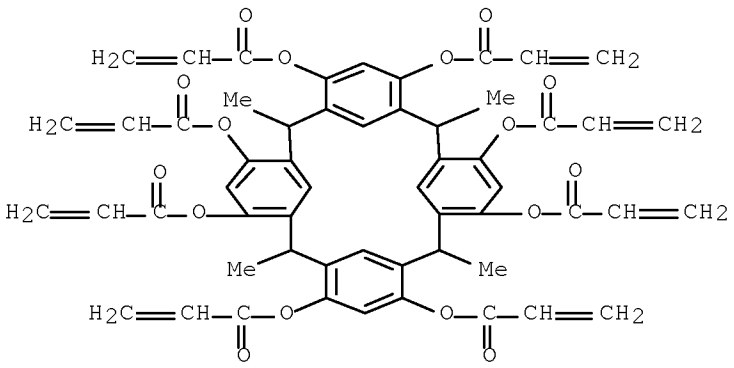
IT 646474-80-8P 646474-81-9P 646474-83-1P
646474-87-5P 646474-89-7P 646474-91-1P
646474-94-4P 646474-98-8P 646475-02-7P
646475-08-3P 646475-11-8P 646475-14-1P
646475-16-3P 646475-18-5P 646475-20-9P
646475-22-1P 646475-24-3P 646475-26-5P
646475-29-8P 646475-31-2P 646475-33-4P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB resist materials and their heat-resistant crystal-free flat films)

RN 646474-80-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl ester (9CI) (CA INDEX NAME)

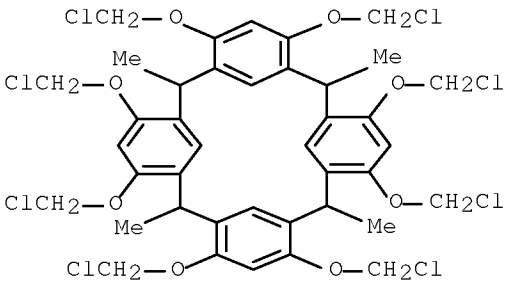


RN 646474-81-9 HCAPLUS
CN 2-Propenoic acid, 2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-

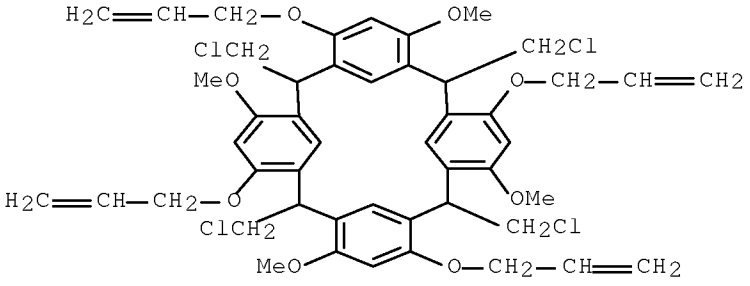
4,6,10,12,16,18,22,24-octayl ester (9CI) (CA INDEX NAME)



RN 646474-83-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 4,6,10,12,16,18,22,24-octakis(chloromethoxy)-2,8,14,20-tetramethyl- (CA INDEX NAME)

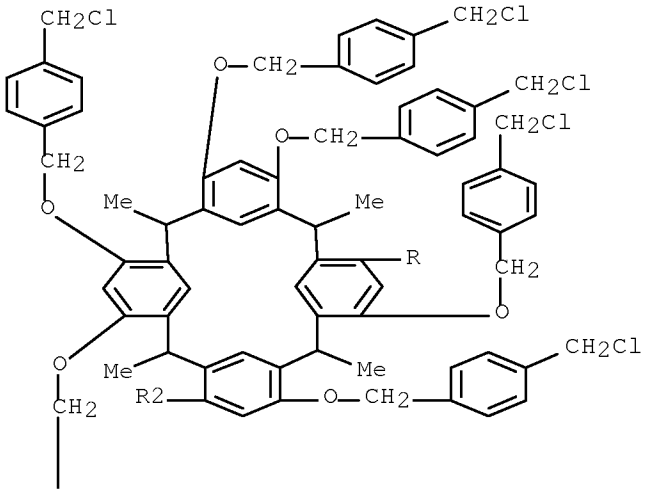


RN 646474-87-5 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 2,8,14,20-tetrakis(chloromethyl)-4,10,16,22-tetramethoxy-6,12,18,24-tetrakis(2-propen-1-yloxy)- (CA INDEX NAME)

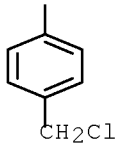


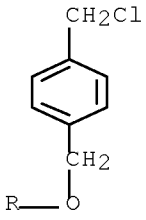
RN 646474-89-7 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 4,6,10,12,16,18,22,24-octakis[[4-(chloromethyl)phenyl]methoxy]-2,8,14,20-tetramethyl- (CA INDEX NAME)

PAGE 1-A

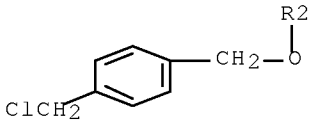


PAGE 2-A

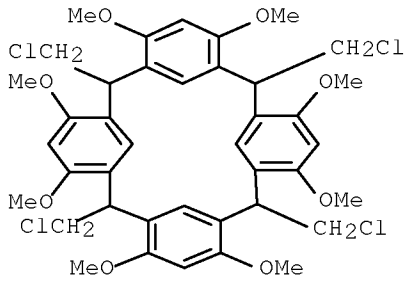




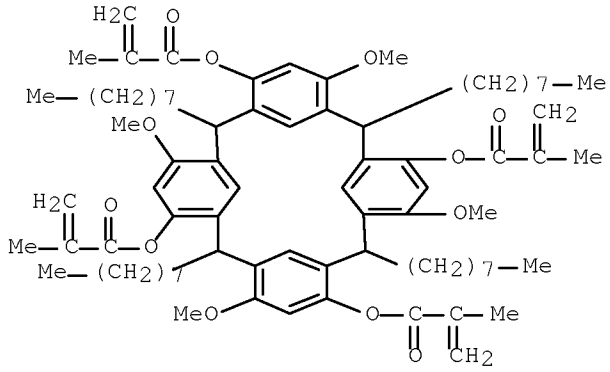
PAGE 3-A



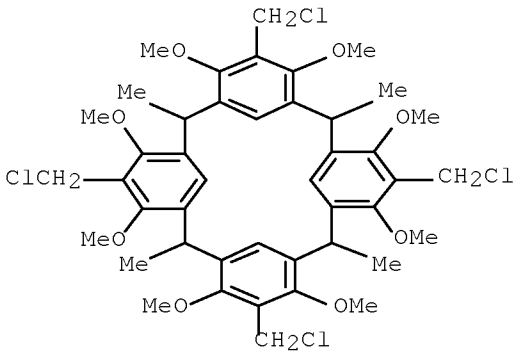
RN 646474-91-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 2,8,14,20-tetrakis(chloromethyl)-4,6,10,12,16,18,22,24-octamethoxy- (CA INDEX NAME)



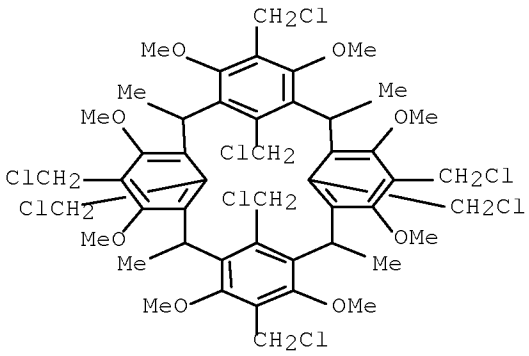
RN 646474-94-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 6,12,18,24-tetramethoxy-2,8,14,20-tetraoctylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,10,16,22-tetrayl ester (9CI) (CA INDEX NAME)



RN 646474-98-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-4,6,10,12,16,18,22,24-octamethoxy-2,8,14,20-tetramethyl- (CA INDEX NAME)

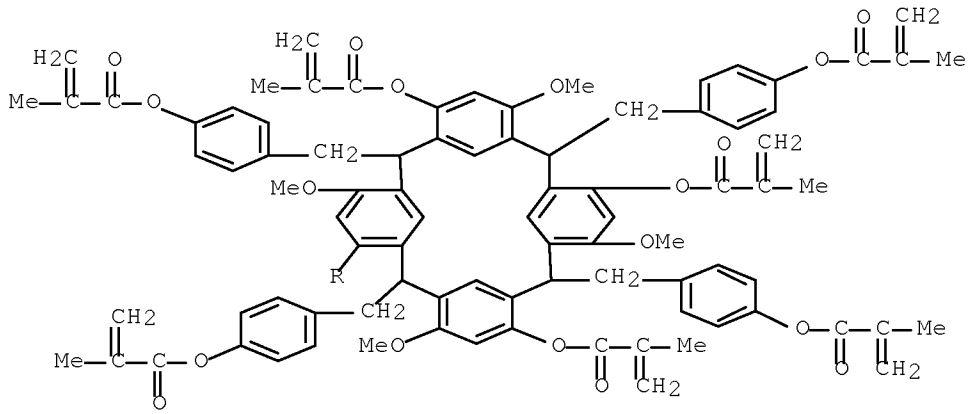


RN 646475-02-7 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23,25,26,27,28-octakis(chloromethyl)-4,6,10,12,16,18,22,24-octamethoxy-2,8,14,20-tetramethyl- (CA INDEX NAME)

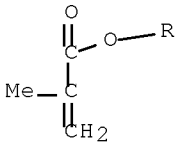


RN 646475-08-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, [4,10,16,22-tetramethoxy-6,12,18,24-tetrakis[(2-methyl-1-oxo-2-propenyl)oxy]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-2,8,14,20-tetrayl]tetrakis(methylene-4,1-phenylene) ester (9CI) (CA INDEX NAME)

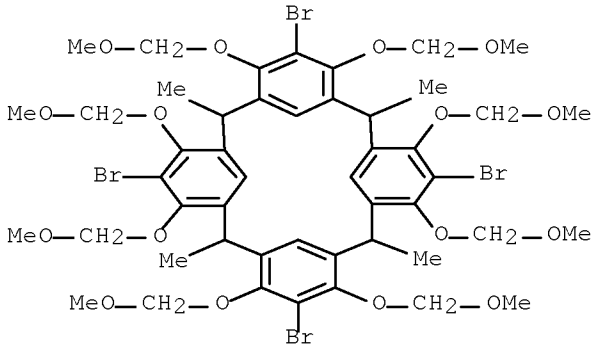
PAGE 1-A



PAGE 2-A

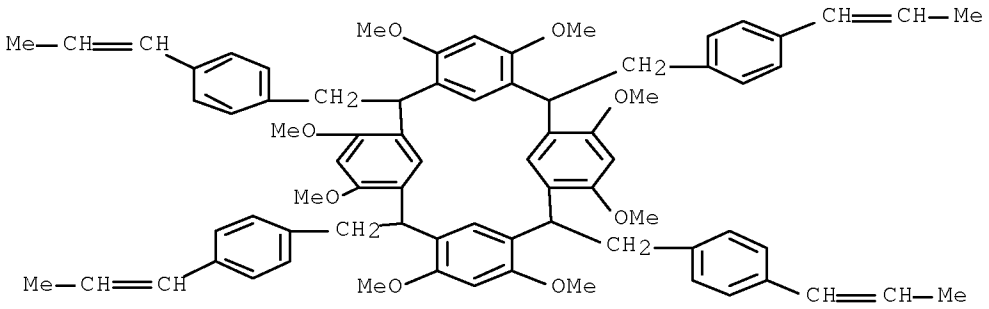


RN 646475-11-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrabromo-4,6,10,12,16,18,22,24-octakis(methoxymethoxy)-2,8,14,20-tetramethyl- (CA INDEX NAME)

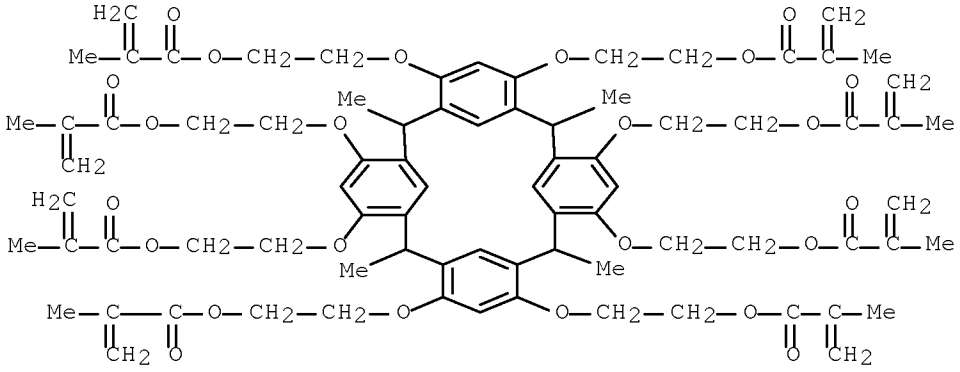


RN 646475-14-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 4,6,10,12,16,18,22,24-octamethoxy-2,8,14,20-tetrakis[[4-(1-propen-1-

yl)phenyl]methyl]- (CA INDEX NAME)

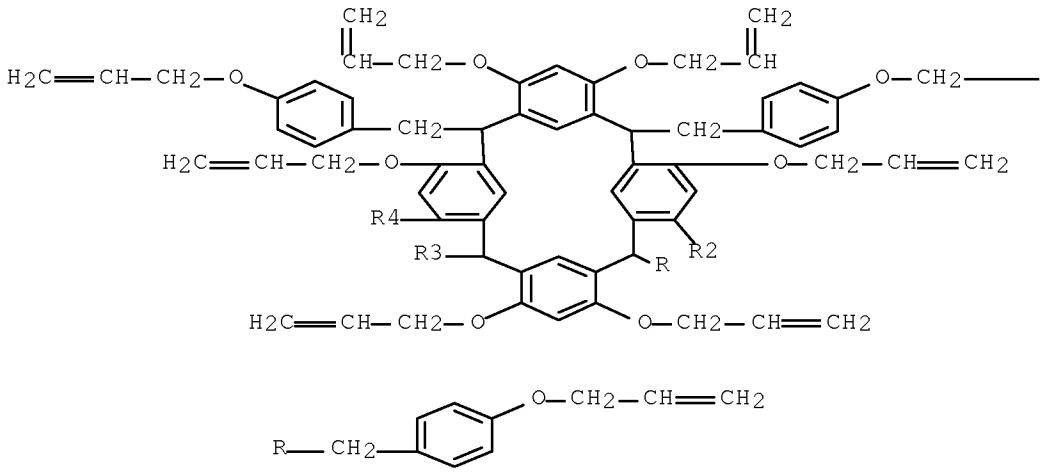


RN 646475-16-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, (2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octa-2,1-ethanediyl ester (9CI) (CA INDEX NAME)

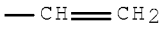


RN 646475-18-5 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 4,6,10,12,16,18,22,24-octakis(2-propen-1-yloxy)-2,8,14,20-tetrakis[[4-(2-propen-1-yloxy)phenyl]methyl]- (CA INDEX NAME)

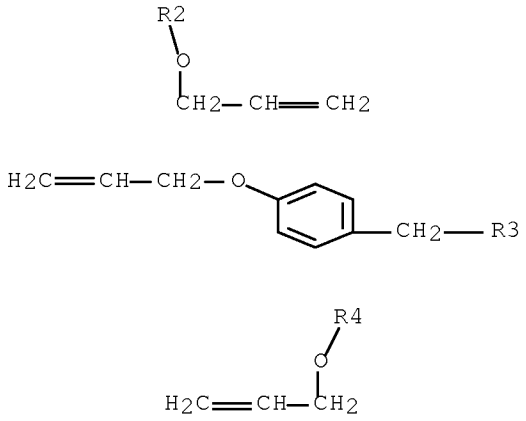
PAGE 1-A



PAGE 1-B



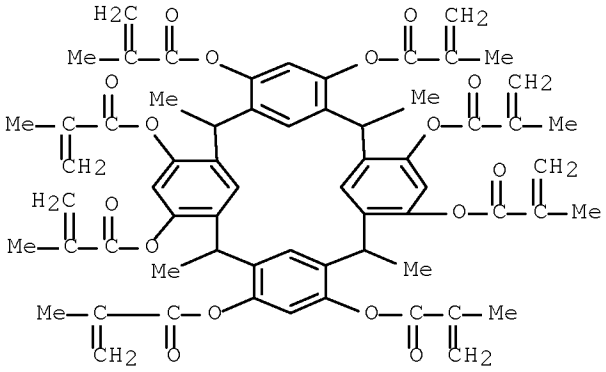
PAGE 2-A



RN 646475-20-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl ester, polymer with (1-methylethenyl)benzene and oxybis(2,1-ethanediyloxy-2,1-ethanediyl) bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

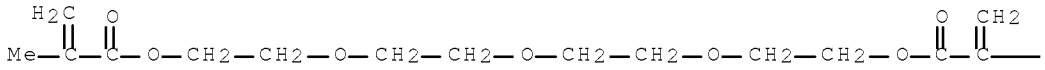
CRN 646474-80-8
CMF C64 H64 O16



CM 2

CRN 109-17-1
CMF C16 H26 O7

PAGE 1-A

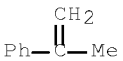


PAGE 1-B

—Me

CM 3

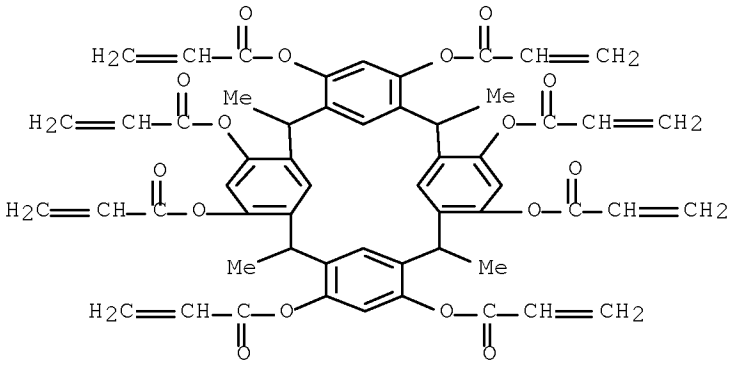
CRN 98-83-9
CMF C9 H10



RN 646475-22-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, oxybis(2,1-ethanediyloxy-2,1-ethanediyl) ester, polymer with (1-methylethenyl)benzene and 2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl octa-2-propenoate (9CI) (CA INDEX NAME)

CM 1

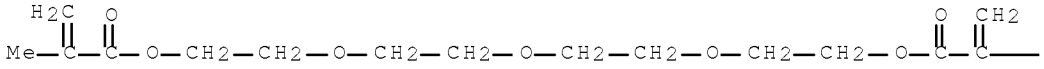
CRN 646474-81-9
CMF C56 H48 O16



CM 2

CRN 109-17-1
CMF C16 H26 O7

PAGE 1-A

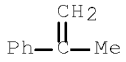


PAGE 1-B

—Me

CM 3

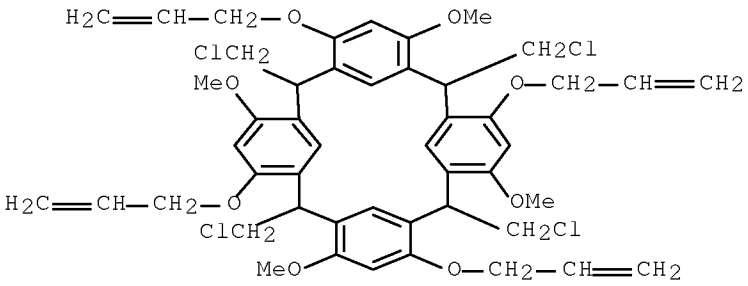
CRN 98-83-9
CMF C9 H10



RN 646475-24-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, oxybis(2,1-ethanediyloxy-2,1-ethanediyl) ester, polymer with (1-methylethenyl)benzene and 2,8,14,20-tetrakis(chloromethyl)-4,10,16,22-tetramethoxy-6,12,18,24-tetrakis(2-propenyloxy)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene (9CI) (CA INDEX NAME)

CM 1

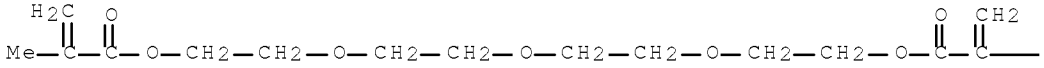
CRN 646474-87-5
CMF C48 H52 Cl4 O8



CM 2

CRN 109-17-1
CMF C16 H26 O7

PAGE 1-A

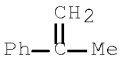


PAGE 1-B

CM 3

CRN 98-83-9

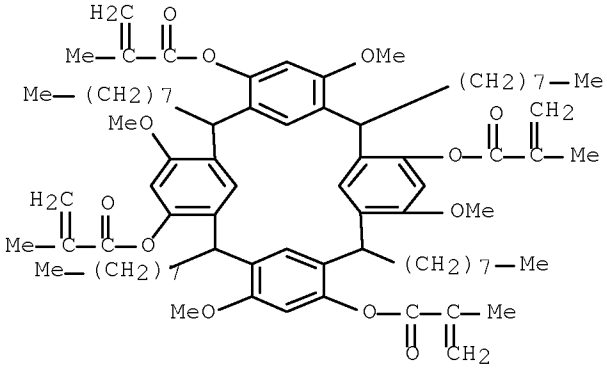
CMF C9 H10



RN 646475-26-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 6,12,18,24-tetramethoxy-2,8,14,20-tetraoctylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,10,16,22-tetrayl ester, polymer with (1-methylethenyl)benzene and oxybis(2,1-ethanediyloxy-2,1-ethanediyl) bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

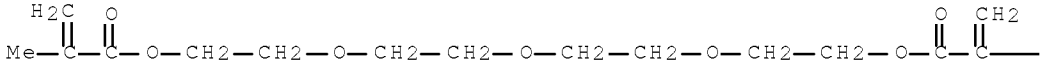
CRN 646474-94-4
CMF C80 H112 O12



CM 2

CRN 109-17-1
CMF C16 H26 O7

PAGE 1-A



PAGE 1-B

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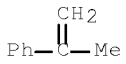
CM 3

CRN 98-83-9
CMF C9 H10

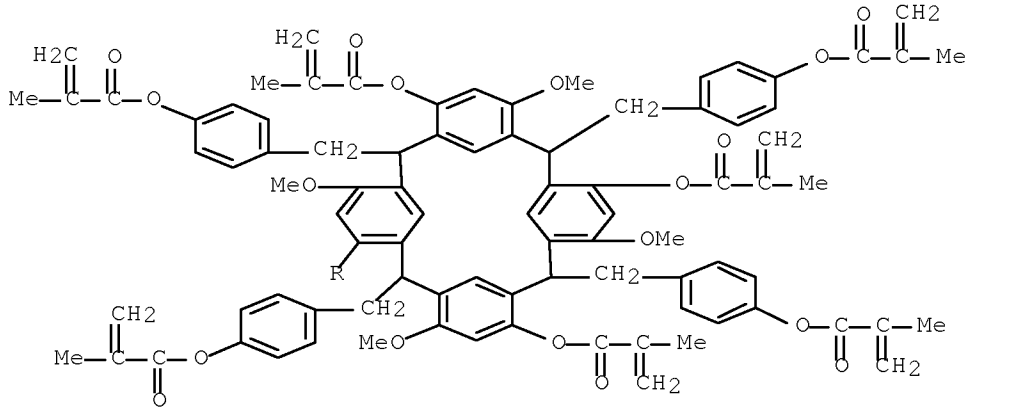


RN 646475-29-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, [4,10,16,22-tetramethoxy-6,12,18,24-tetrakis[(2-methyl-1-oxo-2-propenyl)oxy]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-2,8,14,20-tetrayl]tetrakis(methylene-4,1-phenylene) ester, polymer with (1-methylethenyl)benzene and oxybis(2,1-ethanediyloxy-2,1-ethanediyl) bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

CRN 646475-08-3
CMF C92 H88 O20

PAGE 1-A



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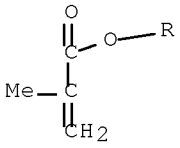
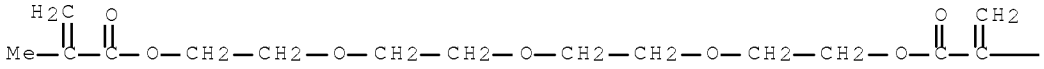


CM 2

CRN 109-17-1
CMF C16 H26 O7

PAGE 1-A



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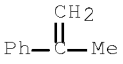
CM 3

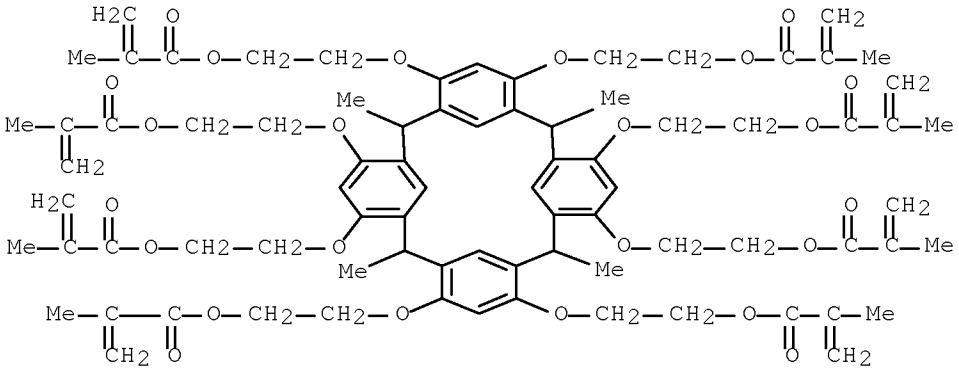
CRN 98-83-9
CMF C9 H10



RN 646475-31-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, (2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxy-2,1-ethanediyl) ester, polymer with (1-methylethenyl)benzene and oxybis(2,1-ethanediyloxy-2,1-ethanediyl) bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

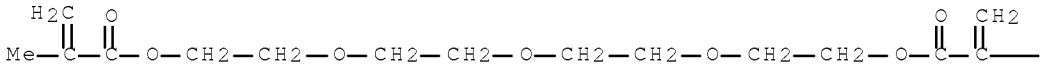
CRN 646475-16-3
CMF C80 H96 O24



CM 2

CRN 109-17-1
CMF C16 H26 O7

PAGE 1-A



PAGE 1-B

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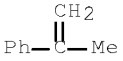
CM 3

CRN 98-83-9
CMF C9 H10

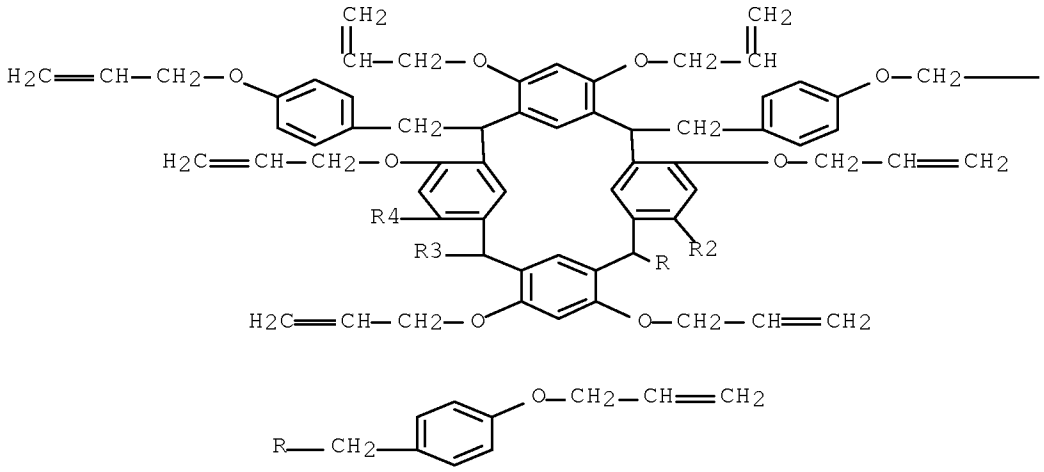


RN 646475-33-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, oxybis(2,1-ethanediyloxy-2,1-ethanediyl) ester, polymer with (1-methylethenyl)benzene and 4,6,10,12,16,18,22,24-octakis(2-propenyloxy)-2,8,14,20-tetrakis[[4-(2-propenyloxy)phenyl]methyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene (9CI) (CA INDEX NAME)

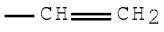
CM 1

CRN 646475-18-5
CMF C92 H96 O12

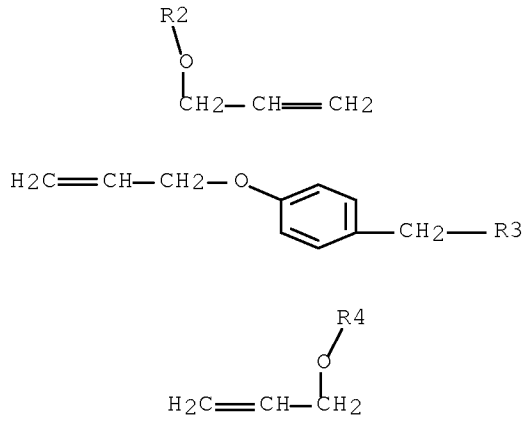
PAGE 1-A



PAGE 1-B



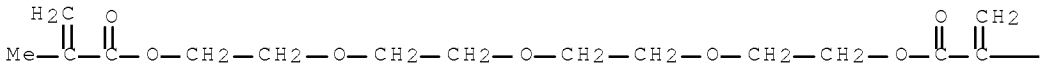
PAGE 2-A



CM 2

CRN 109-17-1
CMF C16 H26 O7

PAGE 1-A



PAGE 1-B

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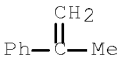
CM 3

CRN 98-83-9
CMF C9 H10



IC ICM C07C069-54
ICS C07C043-215; C07C043-225; C07C043-307; C08F016-32; C08F020-20; C08J005-18; C08L029-10; C08L033-04
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37, 74
ST polymerizable group contg calix resorcinarene film; heat resistance calix resorcinarene film; neg electron beam resist calix resorcinarene
IT Metacyclophanes
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(calixarenes; solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB resist materials and their heat-resistant crystal-free flat films)
IT Electron beam resists
(neg.-working; solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB resist materials and their heat-resistant crystal-free flat films)
IT Plastic films
(solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB resist materials and their heat-resistant crystal-free flat films)
IT 646475-35-6P
RL: IMF (Industrial manufacture); PREP (Preparation)
(solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB

resist materials and their heat-resistant crystal-free flat films)

IT 65338-98-9P 646475-05-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB resist materials and their heat-resistant crystal-free flat films)

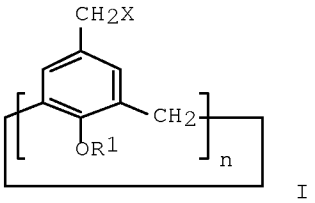
IT 646474-80-8P 646474-81-9P 646474-83-1P
646474-87-5P 646474-89-7P 646474-91-1P
646474-94-4P 646474-98-8P 646475-02-7P
646475-08-3P 646475-11-8P 646475-14-1P
646475-16-3P 646475-18-5P 646475-20-9P
646475-22-1P 646475-24-3P 646475-26-5P
646475-29-8P 646475-31-2P 646475-33-4P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB resist materials and their heat-resistant crystal-free flat films)

IT 50-00-0, Formaldehyde, reactions 107-20-0 108-46-3, Resorcinol, reactions 124-19-6, Nonanal 150-19-6 6751-75-3 7339-87-9 646474-96-6 646475-00-5 646475-12-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(solvent-soluble polymerizable calix resorcinarene derivs. for neg. EB resist materials and their heat-resistant crystal-free flat films)

L22 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2003:527539 HCAPLUS Full-text
DOCUMENT NUMBER: 139:85127
TITLE: Preparation of solvent-soluble calixarenes and their smooth films
INVENTOR(S): Oshima, Eiji; Takenaka, Junji
PATENT ASSIGNEE(S): Tokuyama Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003192649	A	20030709	JP 2001-397522	20011227 <--
PRIORITY APPLN. INFO.:			JP 2001-397522	20011227 <--

OTHER SOURCE(S): MARPAT 139:85127
GI



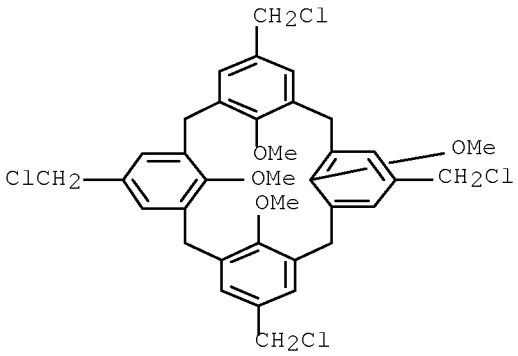
I

AB Title compds. I [n = 4-10; R1 = (cyclo)alkyl, alkenyl, (meth)acryloyl, etc.; X = NR2R3; R2, R3 = H, (un)substituted alkyl, alkenyl, aryl; R2 = R3 ≠ H; R2R3 may be linked to form ring], useful for electron beam resists (no data), are prepared by amination of I (n, R1 = same as above; X = Cl). Thus, I (n = 6, R1 = Me, X = Cl) was aminated by Et2NH at 50° for 3 h in CHCl3 to give 74% I (n, R1 = same as above; X = NEt2), which showed high solubility in various organic solvents and no crystallization when formed into a film.

IT 139934-98-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of solvent-soluble calixarenes and their crystal-free films for
electron beam resists)

RN 139934-98-8 HCAPLUS

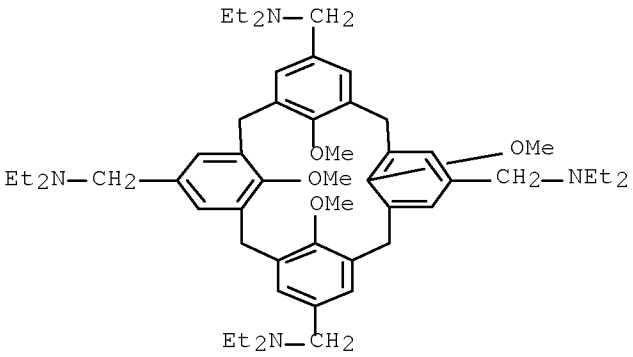
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



IT 556066-31-0P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of solvent-soluble calixarenes and their crystal-free films for
electron beam resists)

RN 556066-31-0 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,11,17,23-tetramethanamine, N5,N5,N11,N11,N17,N17,N23,N23-octaethyl-25,26,27,28-tetramethoxy- (CA INDEX NAME)



IC ICM C07C217-58
ICS C07C213-02; C07C219-28; C07D295-08; G03F007-038
CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 74
ST calixarene prepn film electron beam resist; amination chloromethylcalixarene electron beam resist film
IT Metacyclophanes
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(calixarenes; preparation of solvent-soluble calixarenes and their crystal-free
films for electron beam resists)
IT Electron beam resists
(neg.-working; preparation of solvent-soluble calixarenes and their crystal-free films for electron beam resists)
IT Films
(preparation of solvent-soluble calixarenes and their crystal-free films for
electron beam resists)
IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of solvent-soluble calixarenes and their crystal-free films for
electron beam resists)
IT 109-73-9, Butylamine, reactions 109-83-1, (2-Hydroxyethyl)methylamine
109-89-7, Diethylamine, reactions 110-89-4, Piperidine, reactions
111-42-2, Diethanolamine, reactions 122-39-4, Diphenylamine, reactions
124-02-7, Diallylamine 142-84-7, Dipropylamine 39216-86-9
124006-38-8 124006-39-9 139934-98-8 476687-13-5
556066-51-4 556066-52-5 556066-53-6 556066-54-7 556066-55-8
556066-56-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of solvent-soluble calixarenes and their crystal-free films for
electron beam resists)
IT 556066-45-6P 556066-46-7P 556066-47-8P
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation of solvent-soluble calixarenes and their crystal-free films for

electron beam resists)
IT 556066-30-9P 556066-31-0P 556066-32-1P 556066-33-2P
556066-34-3P 556066-35-4P 556066-36-5P 556066-37-6P 556066-38-7P
556066-39-8P 556066-40-1P 556066-41-2P 556066-42-3P 556066-43-4P
556066-44-5P 556066-48-9P 556066-49-0P 556066-50-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of solvent-soluble calixarenes and their crystal-free films for
electron beam resists)

L22 ANSWER 10 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2002:867239 HCAPLUS Full-text
DOCUMENT NUMBER: 137:377437
TITLE: Positive working radiation polymerizable compositions
INVENTOR(S): Ueda, Mitsuru; Shibazaki, Yuji; Fujigaya, Takehiko; Kwon, Yong Gil
PATENT ASSIGNEE(S): Jsr Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002328473	A	20021115	JP 2001-134962	20010502 <--
PRIORITY APPLN. INFO.:			JP 2001-134962	20010502 <--
OTHER SOURCE(S):	MARPAT 137:377437			

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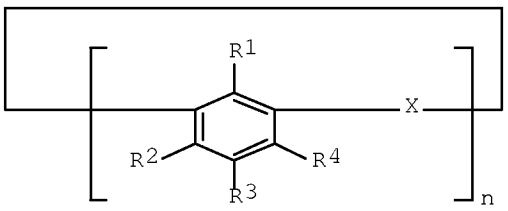
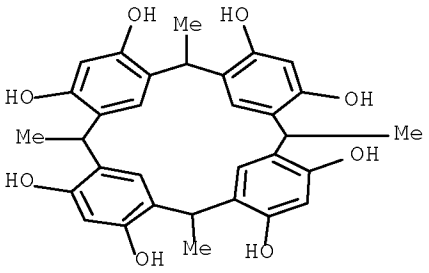


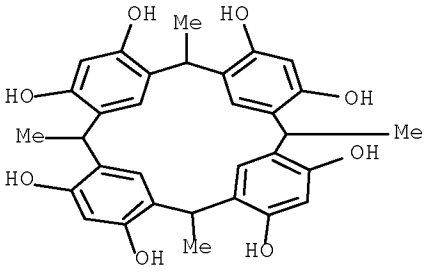
I

AB The compns. comprise (A) cyclic polyphenolic compds. I (R1-4 = H, OH, halo, alkyl, aryl, aralkyl, alkoxy, alkenyl, acyl, alkoxycarbonyl, alkyloyloxy, aryloyloxy, cyano, nitro; ≥1 of R1-4 is tert-butoxycarbonyloxy; X = direct bond, CR5R6; R5-6 = H, alkyl, aryl; n = integer of 3-8) and (B) radiation-sensitive acid generators. The compns. have high resolution and high sensitivity.
IT 65338-98-9DP, tert-butoxycarbonyl derivs. 65338-98-9P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(calixarene-acid generator compns. for pos.-working

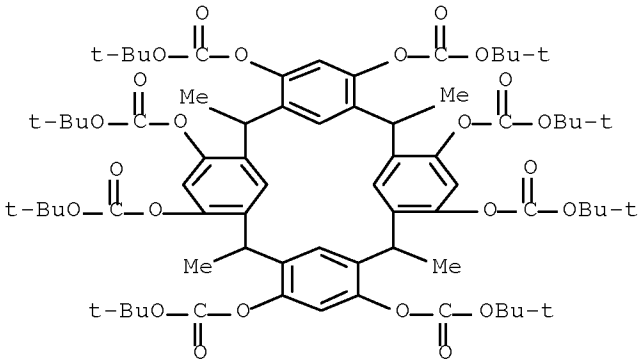
photoresists)
RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



IT 250715-31-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(calixarene-acid generator compns. for pos.-working photoresists)
RN 250715-31-2 HCAPLUS
CN Carbonic acid, C,C',C'',C''',C'''',C''''',C'''''',C'''''''-(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl) C,C',C'',C''',C'''',C''''',C'''''',C'''''''-octakis(1,1-dimethylethyl) ester (CA INDEX NAME)



IC ICM G03F007-039
ICS G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
ST methylcalixresorcinarene acid generator pos photoresist; calixarene acid generator compn pos photoresist
IT Positive photoresists
(calixarene-acid generator compns. for pos.-working photoresists)
IT 65338-98-9DP, tert-butoxycarbonyl derivs. 65338-98-9P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(calixarene-acid generator compns. for pos.-working photoresists)
IT 250715-31-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(calixarene-acid generator compns. for pos.-working photoresists)
IT 75-07-0, Acetaldehyde, reactions 108-46-3, Resorcinol, reactions 24424-99-5, Di-tert-butyl dicarbonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(calixarene-acid generator compns. for pos.-working photoresists)
IT 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(radiation-sensitive acid generator; calixarene-acid generator compns. for pos.-working photoresists)

L22 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1999:513131 HCAPLUS Full-text
DOCUMENT NUMBER: 131:293195
TITLE: Novel dissolution inhibitors based on calixarene derivatives for use in chemical amplification resists
AUTHOR(S): Ito, Hiroshi; Nakayama, Tomonari; Ueda, Mitsuru; Sherwood, Mark; Miller, Dolores
CORPORATE SOURCE: IBM Almaden Research Center, San Jose, CA, 95120, USA
SOURCE: Polymeric Materials Science and Engineering (1999), 81, 51-52
CODEN: PMSEDG; ISSN: 0743-0515
PUBLISHER: American Chemical Society

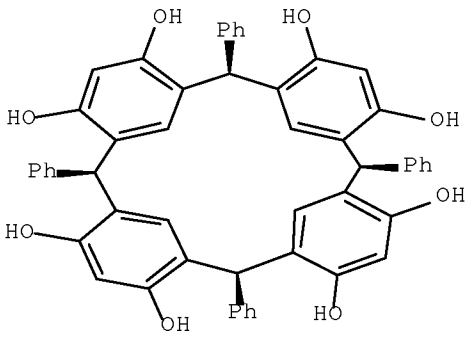
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Calix[4]resorcinarenes were synthesized by condensing resorcinol with aldehydes (acetaldehyde, benzaldehyde, and 4-isopropylbenzaldehyde) and separated into C4v and C2v, isomers. All eight OH groups were protected with acid-labile groups such as tBOC and tBuOCOCH2. The protected calixarenes have been found to be excellent dissoln. inhibitors for use in chemical amplification resists.

IT 74410-61-0DP, t-butoxycarbonyl- or t-butoxycabonylmethyl-protected
145843-14-7DP, t-butoxycarbonyl- or
t-butoxycabonylmethyl-protected 246023-01-8P
246023-03-0P 246023-04-1DP, t-butoxycarbonyl- or
t-butoxycabonylmethyl-protected 246023-06-3P
246024-56-6DP, t-butoxycarbonyl- or
t-butoxycabonylmethyl-protected
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in chemical amplification resists)

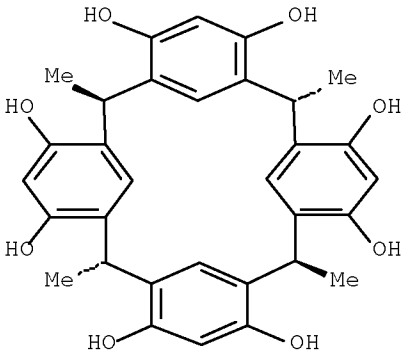
RN 74410-61-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetraphenyl-, stereoisomer (CA INDEX NAME)

Relative stereochemistry.



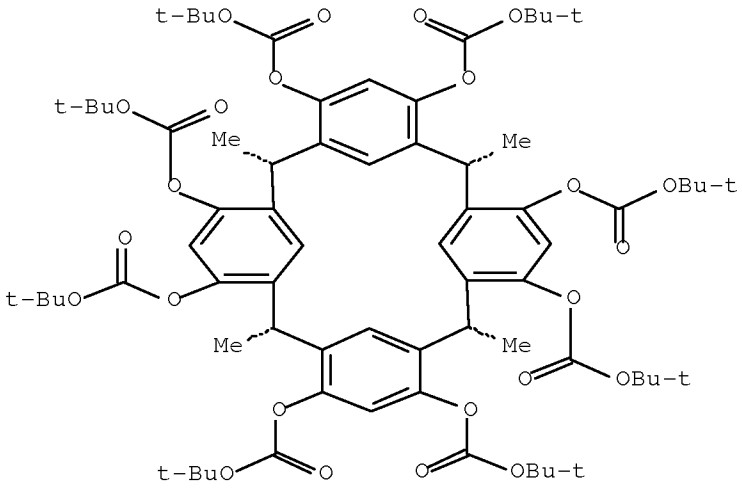
RN 145843-14-7 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl-, (2β,8α,14β,20α)- (CA INDEX NAME)

Relative stereochemistry.



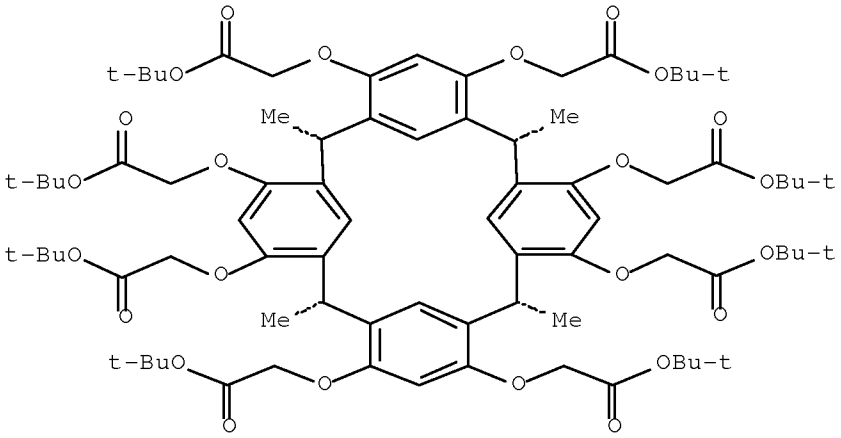
RN 246023-01-8 HCAPLUS
CN Carbonic acid, C,C',C'',C''',C'''',C''''',C'''''',C'''''''-(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl) C,C',C'',C''',C'''',C''''',C'''''',C'''''''-octakis(1,1-dimethylethyl) ester, stereoisomer (CA INDEX NAME)

Relative stereochemistry.



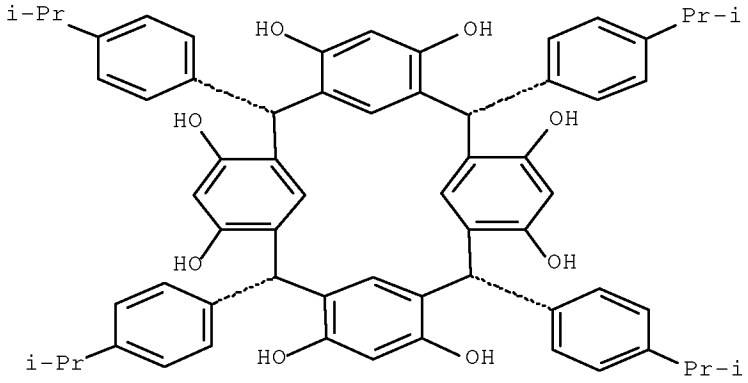
RN 246023-03-0 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxy)]octakis-, 1,1',1'',1''',1'''',1''''',1'''''',1'''''''-octakis(1,1-dimethylethyl) ester, stereoisomer (CA INDEX NAME)

Relative stereochemistry.



RN 246023-04-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetrakis[4-(1-methylethyl)phenyl]-, stereoisomer (CA INDEX NAME)

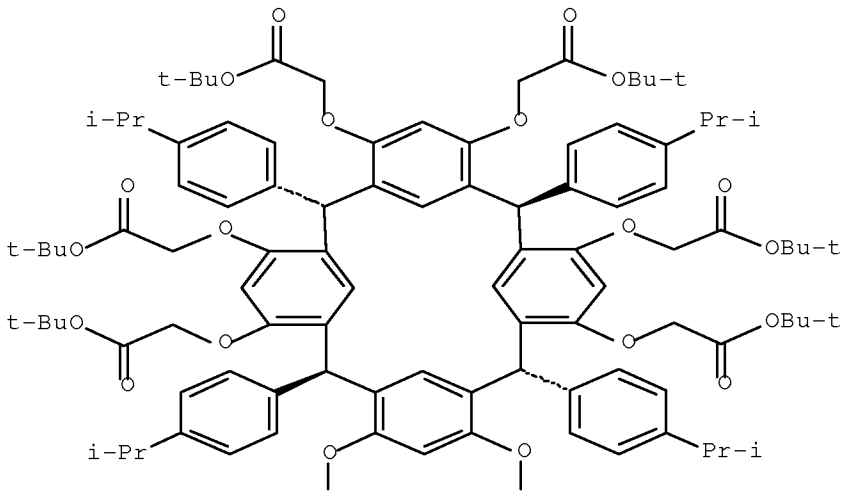
Relative stereochemistry.



RN 246023-06-3 HCAPLUS
CN Acetic acid, 2,2',2'',2''',2'''',2''''',2'''''',2'''''''-[[2,8,14,20-tetrakis[4-(1-methylethyl)phenyl]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl]octakis(oxy)]octakis-, octakis(1,1-dimethylethyl) ester, stereoisomer (9CI) (CA INDEX NAME)

Relative stereochemistry.

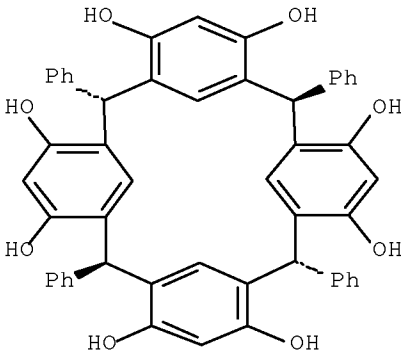
PAGE 1-A



PAGE 2-A

RN 246024-56-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetraphenyl-, (2β,8α,14β,20α)- (CA INDEX NAME)

Relative stereochemistry.

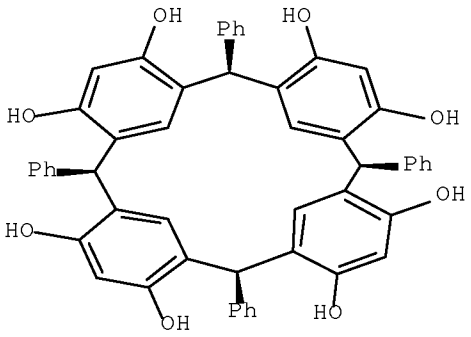


IT 74410-61-0P 74708-10-4P 145843-14-7DP, t-butoxycarbonyl- or t-butoxycabonylmethyl-protected 246023-04-1P

246023-05-2P 246024-56-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of novel dissoln. inhibitors based on calix[4]resorcinarenes for use in chemical amplification resists)

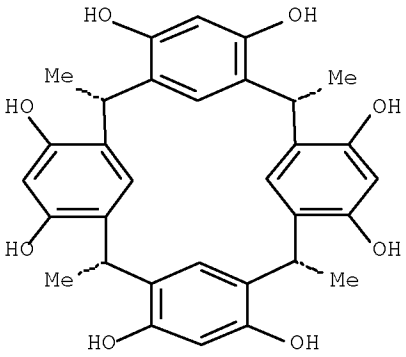
RN 74410-61-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetraphenyl-, stereoisomer (CA INDEX NAME)

Relative stereochemistry.



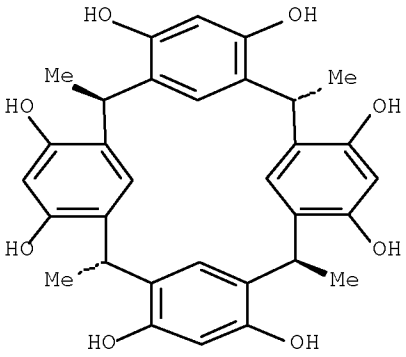
RN 74708-10-4 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl-, stereoisomer (CA INDEX NAME)

Relative stereochemistry.



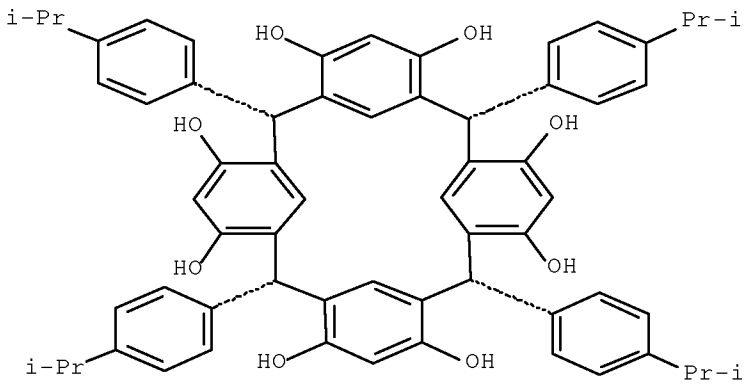
RN 145843-14-7 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl-, (2β,8α,14β,20α)- (CA INDEX NAME)

Relative stereochemistry.



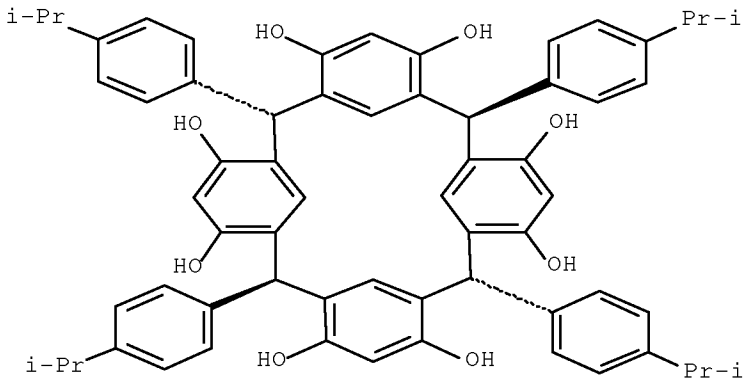
RN 246023-04-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetrakis[4-(1-methylethyl)phenyl]-, stereoisomer (CA INDEX NAME)

Relative stereochemistry.



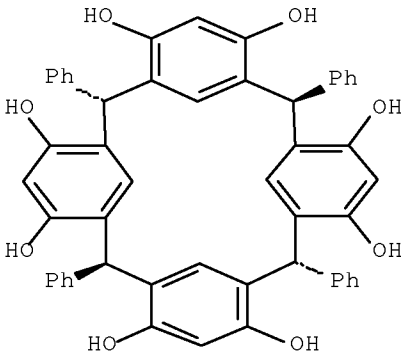
RN 246023-05-2 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetrakis[4-(1-methylethyl)phenyl]-, (2α,8β,14α,20β)- (CA INDEX NAME)

Relative stereochemistry.



RN 246024-56-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetraphenyl-, (2β,8α,14β,20α)- (CA INDEX NAME)

Relative stereochemistry.



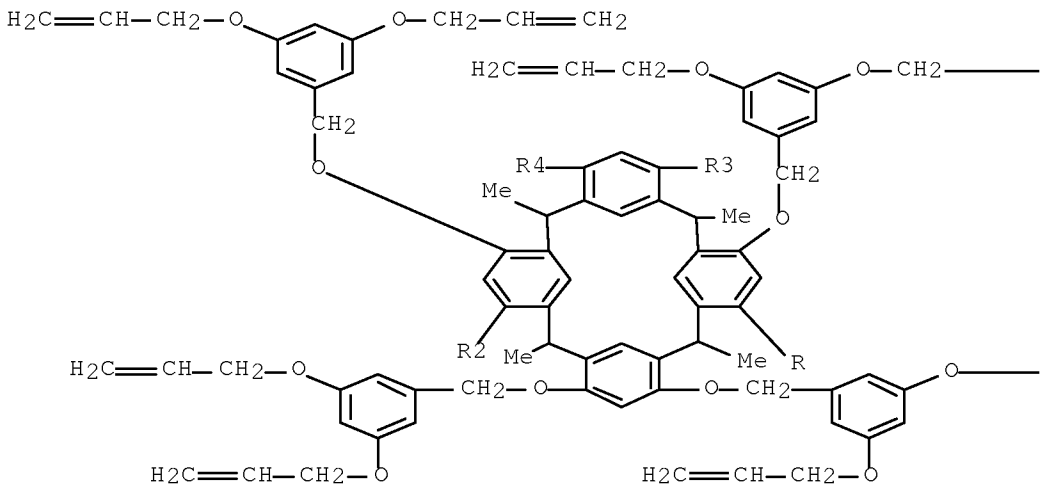
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 76
ST dissoln inhibitor calixarene chem amplification photoresist
IT Photolithography
Photoresists
Semiconductor device fabrication
(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in chemical amplification resists)
IT Dendritic polymers
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in chemical amplification resists)
IT 159296-87-4, 4-Hydroxystyrene-tert-butyl acrylate copolymer
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in

chemical amplification resists)
IT 74410-61-0DP, t-butoxycarbonyl- or t-butoxycabonylmethyl-protected
145843-14-7DP, t-butoxycarbonyl- or
t-butoxycabonylmethyl-protected 246023-01-8P
246023-03-0P 246023-04-1DP, t-butoxycarbonyl- or
t-butoxycabonylmethyl-protected 246023-06-3P
246024-56-6DP, t-butoxycarbonyl- or
t-butoxycabonylmethyl-protected
RL: PRP (Properties); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); USES
(Uses)
(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in
chemical amplification resists)
IT 75-07-0, Acetaldehyde, reactions 100-52-7, Benzaldehyde, reactions
108-46-3, Resorcinol, reactions 122-03-2, 4-Isopropylbenzaldehyde
5292-43-3, tert-Butyl bromoacetate 24424-99-5, Di-tert-butyl dicarbonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of novel dissoln. inhibitors based on calix[4]resorcinarenes
for use in chemical amplification resists)
IT 74410-61-0P 74708-10-4P 145843-14-7DP,
t-butoxycarbonyl- or t-butoxycabonylmethyl-protected 246023-04-1P
246023-05-2P 246024-56-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(preparation of novel dissoln. inhibitors based on calix[4]resorcinarenes
for use in chemical amplification resists)
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

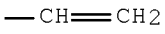
L22 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1999:44198 HCAPLUS Full-text
DOCUMENT NUMBER: 130:202814
TITLE: A New Photoresist Based on
Calix[4]resorcinarene Dendrimer
AUTHOR(S): Haba, Osamu; Haga, Kohji; Ueda, Mitsuru; Morikawa,
Osamu; Konishi, Hisatoshi
CORPORATE SOURCE: Department of Human Sensing and Functional Sensor
Engineering Graduate School of Engineering, Yamagata
University, Yamagata, 992-8510, Japan
SOURCE: Chemistry of Materials (1999), 11(2),
427-432
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new dendrimer (1), which contains phenol groups in the exterior for
solubilization in aqueous alkaline solution and calix[4]resorcinarene in the
interior to increase the mol. weight and number of the phenol group even in
the lower generation, was designed as new neg.-working, alkaline-developable
photoresist material. A neg.-working photoresist based on 1, 2,6-
bis(hydroxymethyl)phenol as crosslinker, and diphenyliodonium 9,10-
dimethoxyanthracene-2-sulfonate as a photoacid generator was developed. This
resist gave a clear neg. pattern through postbaking at 110° after exposure to
UV light, followed by developing with a 0.3% aqueous Me4NOH solution at room
temperature
IT 196298-31-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(in synthesis of calix[4]resorcinarene dendrimer)
RN 196298-31-4 HCAPLUS

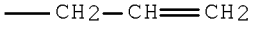
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 4,6,10,12,16,18,22,24-octakis[[3,5-bis(2-propen-1-yloxy)phenyl]methoxy]-2,8,14,20-tetramethyl- (CA INDEX NAME)

PAGE 1-A

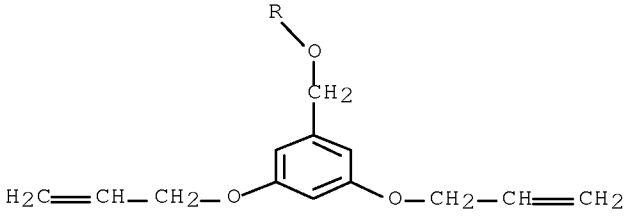


PAGE 1-B

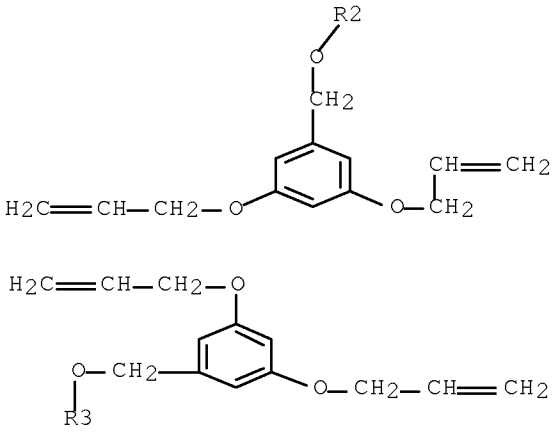




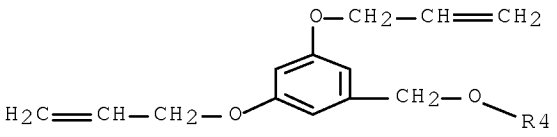
PAGE 2-A



PAGE 3-A



PAGE 4-A

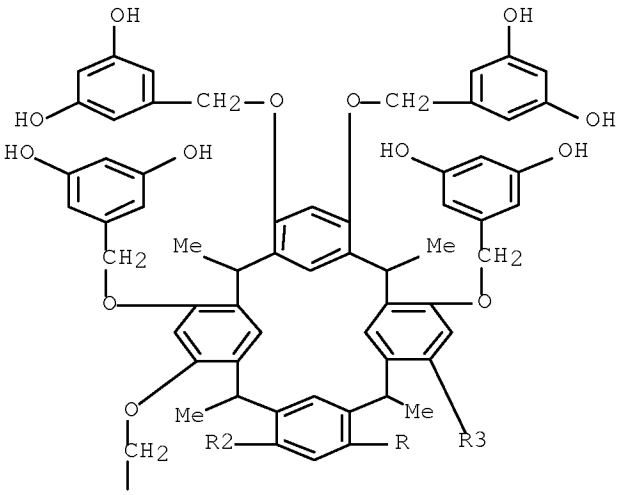


IT 196298-30-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)

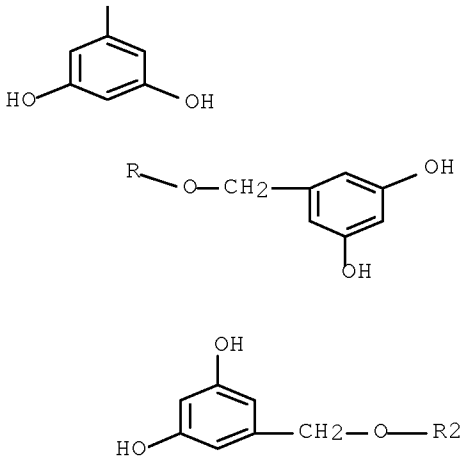
RN 196298-30-3 HCAPLUS

CN 1,3-Benzenediol, 5,5',5'',5''',5'''',5''''',5'''''',5'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxymethylene)]octakis- (9CI) (CA INDEX NAME)

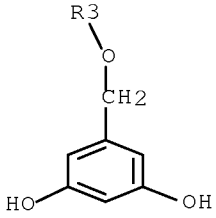
PAGE 1-A



PAGE 2-A



PAGE 3-A



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST lithog photoresist calixresorcinarene dendrimer
IT Negative photoresists
(lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)
IT Dendritic polymers
RL: TEM (Technical or engineered material use); USES (Uses)
(lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)
IT 2937-59-9, 2,6-Bis(hydroxymethyl)phenol
RL: TEM (Technical or engineered material use); USES (Uses)
(crosslinker; lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)
IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)
IT 135710-38-2P, Methyl 3,5-di(allyloxy)benzoate 177837-80-8P, 3,5-Di(allyloxy)benzyl alcohol 196298-31-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in synthesis of calix[4]resorcinarene dendrimer)
IT 196298-30-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)
IT 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; lithog. characterization of new photoresist based on calix[4]resorcinarene dendrimer)
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 13 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1998:781642 HCAPLUS Full-text
DOCUMENT NUMBER: 130:146122
TITLE: A New Three-Component Photoresist Based on Calix[4]resorcinarene Derivative, a Crosslinker, and a Photoacid Generator
AUTHOR(S): Nakayama, Tomonari; Nomura, Masayoshi; Haga, Kohji; Ueda, Mitsuru
CORPORATE SOURCE: Dep. Human Sensing and Functional Sensor Eng., Graduate School of Eng., Yamagata University, Yonezawa, Yamagata, 992-8510, Japan
SOURCE: Bulletin of the Chemical Society of Japan (1998), 71(12), 2979-2984
CODEN: BCSJA8; ISSN: 0009-2673
PUBLISHER: Chemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Calix[4]resorcinarene [2,8,14,20-tetramethylcalix[4]arene-4,6,10,12,16,18,22,24-octol; C4-RA](4) having p-hydroxybenzyl groups on its exterior was prepared by the condensation of C4-RA and p-(allyloxy)benzyl bromide, followed by the cleavage of allyl groups with palladium catalyst and ammonium formate. Compound 4 having high transparency to UV-light above 300

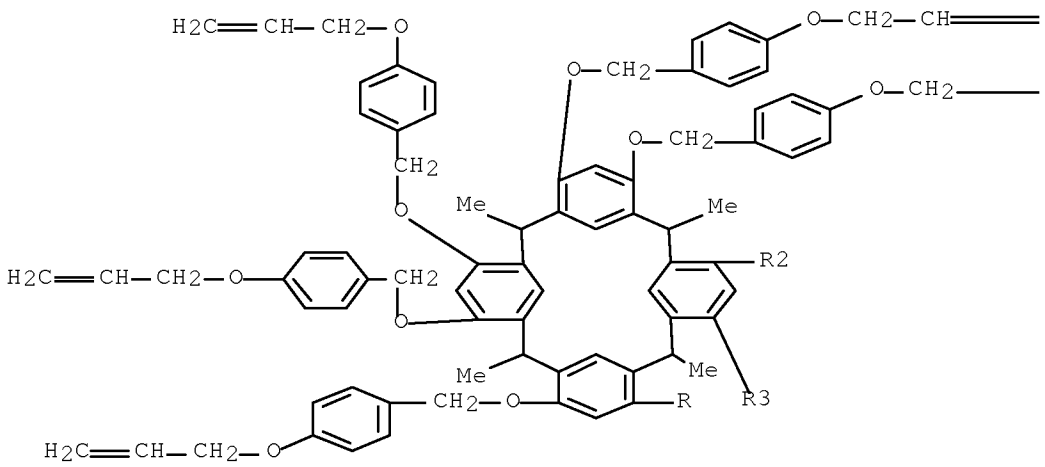
nm was considered for a new resist matrix. A three-component photoresist consisting of 4, 2,6-bis(hydroxymethyl)-4-methylphenol (BHMP), and diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate (DIAS) showed a sensitivity of 19 mJ cm-2(D1/2) and a contrast of 3.0 (γ1/2) when it was exposed to 365 nm light and post-exposure baked (PEB) at 110 °C for 5 min, followed by developing with a 0.2 wt% aqueous tetramethylammonium hydroxide (TMAH) solution A fine neg. image featuring 1 μm of min. line and space patterns was observed on film of the photoresist exposed to 40 mJ-cm-2of UV-light at 365 nm with a scanning electron microscope.

IT 220033-50-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in synthesis of calix[4]resorcinarene derivative for photoresist formulation)

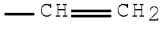
RN 220033-50-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 2,8,14,20-tetramethyl-4,6,10,12,16,18,22,24-octakis[[4-(2-propen-1-yloxy)phenyl]methoxy]- (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



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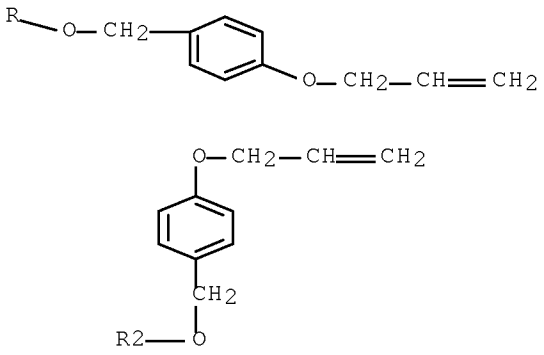
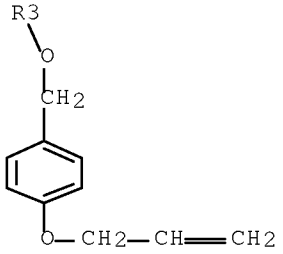


PAGE 3-A

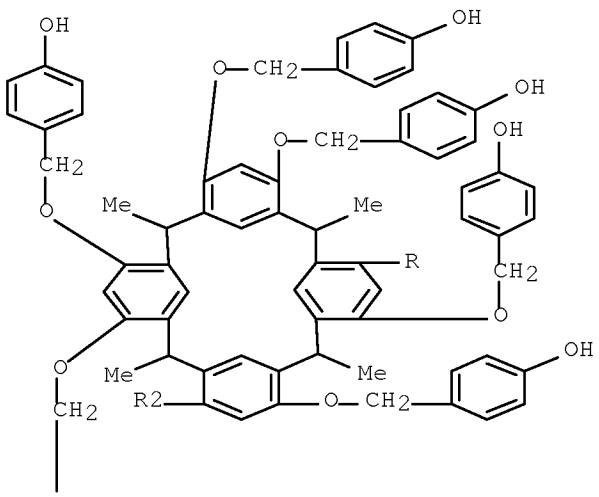


IT 220033-49-8P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)

RN 220033-49-8 HCAPLUS

CN Phenol, 4,4',4'',4''',4'''',4''''',4'''''',4'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxymethylene)]octakis- (9CI) (CA INDEX NAME)

PAGE 1-A



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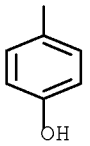
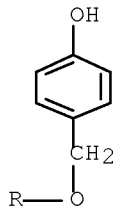
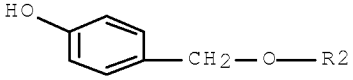




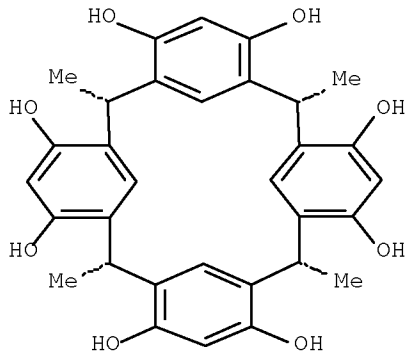
PAGE 3-A



IT 74708-10-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with allyloxybenzyl bromide and 18-crown-6 in synthesis of calix[4]resorcinarene derivative for photoresist formulation)
RN 74708-10-4 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-

4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl-, stereoisomer (CA INDEX NAME)

Relative stereochemistry.



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST photoresist calixresorcinarene deriv crosslinker photoacid generator; lithog photoresist calixresorcinarene deriv

IT UV and visible spectra
(absorption; of calix[4]resorcinarene derivative for photoresist formulation)

IT Photoresists
(lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)

IT Thermal properties
(of calix[4]resorcinarene derivative for photoresist formulation)

IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)

IT 17455-13-9, 18-Crown-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(in synthesis of calix[4]resorcinarene derivative for photoresist formulation)

IT 3256-45-9P, p-(Allyloxy)benzyl alcohol 143116-30-7P, p-(Allyloxy)benzyl bromide 220033-50-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in synthesis of calix[4]resorcinarene derivative for photoresist formulation)

IT 220033-49-8P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)

IT 91-04-3, 2,6-Bis(hydroxymethyl)-4-methylphenol 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
RL: PRP (Properties); TEM (Technical or engineered material use); USES

(Uses)
(lithog. characteristics of three-component photoresist consisting of calix[4]resorcinarene derivative matrix and crosslinker and photoacid generator)

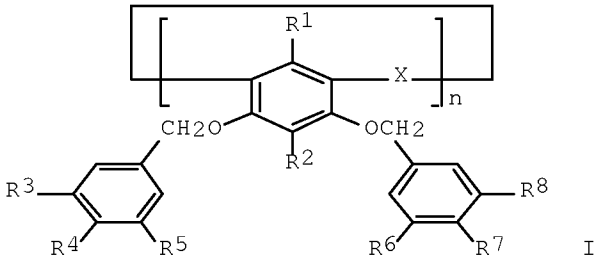
IT 74708-10-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with allyloxybenzyl bromide and 18-crown-6 in synthesis of calix[4]resorcinarene derivative for photoresist formulation)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1998:758628 HCAPLUS Full-text
DOCUMENT NUMBER: 130:73852
TITLE: Phenolic dendrimer and radiation-sensitive composition containing it for resist
INVENTOR(S): Ueda, Mitsuru
PATENT ASSIGNEE(S): JSR Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 25 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10310545	A	19981124	JP 1997-136066	19970509 <--
PRIORITY APPLN. INFO.:			JP 1997-136066	19970509 <--
OTHER SOURCE(S):	MARPAT 130:73852			

GI

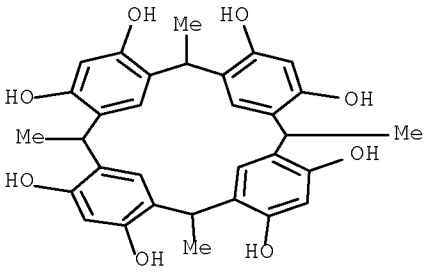


I

AB Title composition contains phenolic dendrimer I (R1-R8 = H, OH, halo, alkyl, aryl, aralkyl, alkoxy, alkenyl, alkenyloxy, acyl, alkoxycarbonyl, alkyloyloxy, aryloyloxy, cyano, NO2; ≥1 of R3-R8 = OH; X = single bond, CR9R10; R9, R10 = H, alkyl, aryl; n = 3-8). The composition is useful as resist showing high sensitivity and resolution

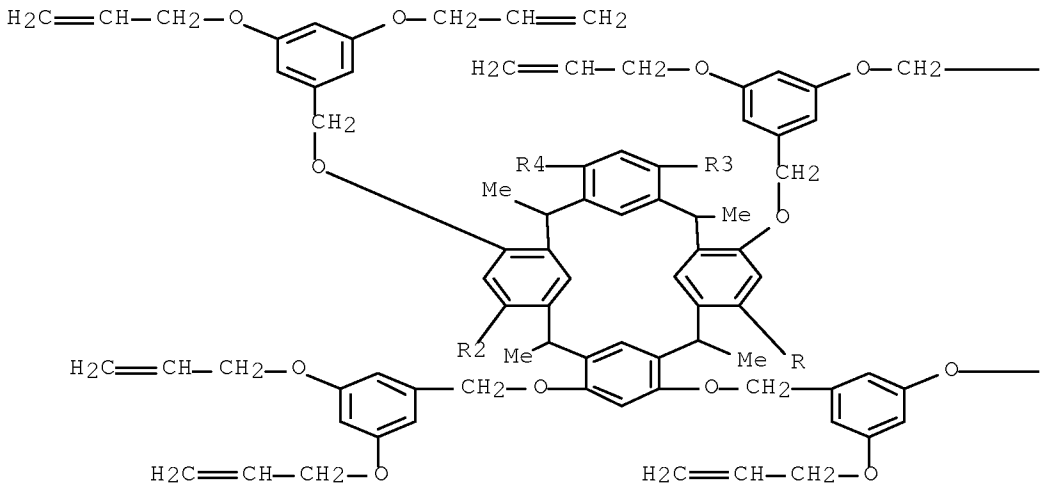
IT 65338-98-9P 196298-31-4P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(in preparation of phenolic dendrimer for radiation-sensitive resist composition)

RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)

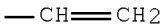


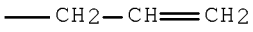
RN 196298-31-4 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 4,6,10,12,16,18,22,24-octakis[[3,5-bis(2-propen-1-yloxy)phenyl]methoxy]-2,8,14,20-tetramethyl- (CA INDEX NAME)

PAGE 1-A

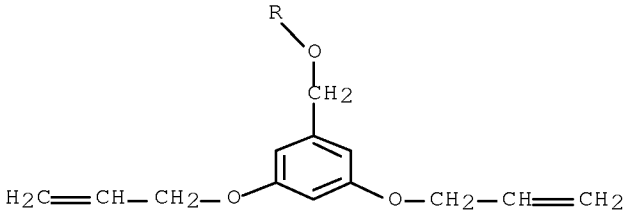


PAGE 1-B

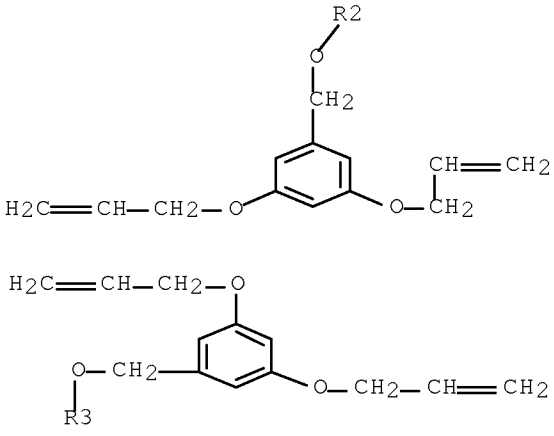




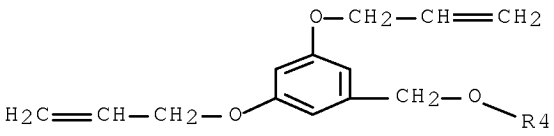
PAGE 2-A



PAGE 3-A

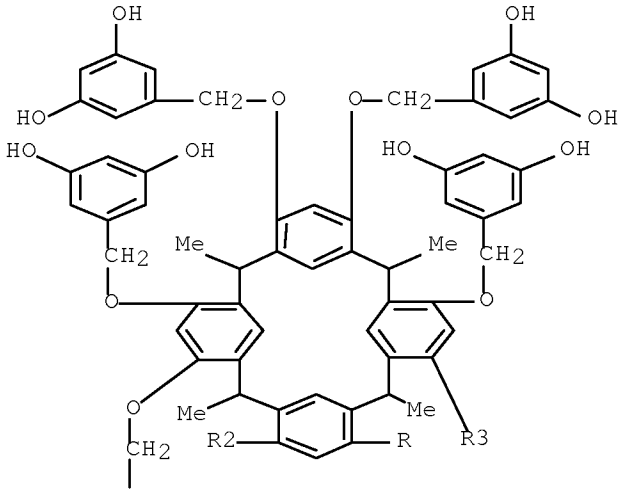


PAGE 4-A

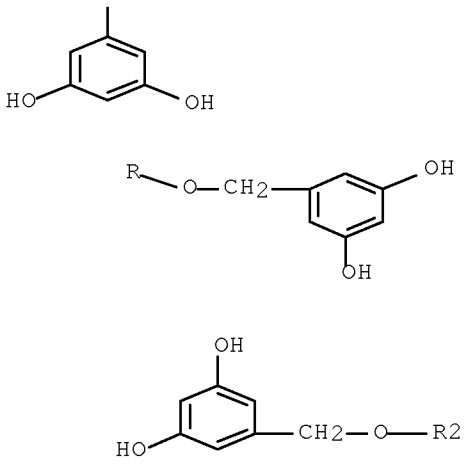


IT 196298-30-3P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(radiation-sensitive resist composition containing phenolic dendrimer)
RN 196298-30-3 HCAPLUS
CN 1,3-Benzenediol, 5,5',5'',5''',5'''',5''''',5'''''',5'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxymethylene)]octakis- (9CI) (CA INDEX NAME)

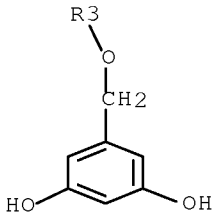
PAGE 1-A



PAGE 2-A



PAGE 3-A

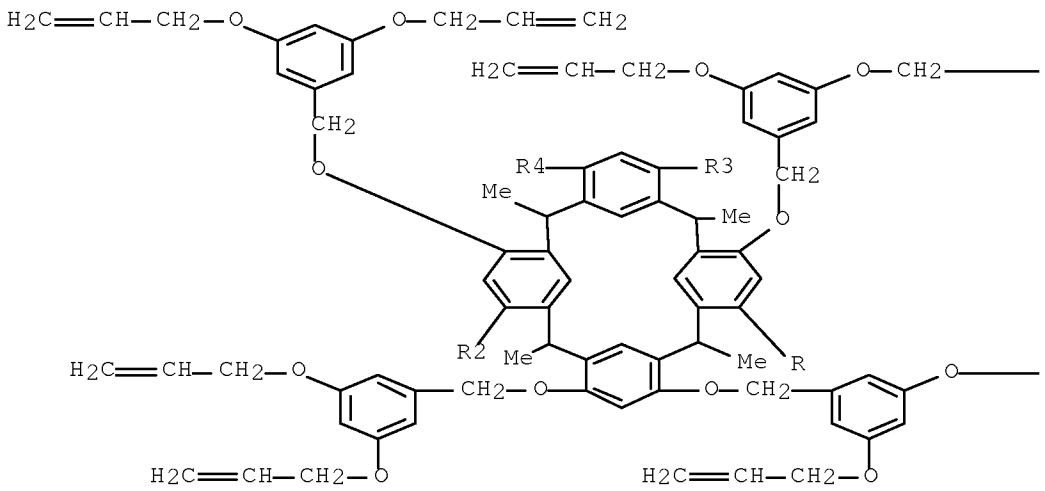


IC ICM C07C043-23
ICS G03F007-022; G03F007-038; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 25
ST phenolic dendrimer radiation sensitive resist
IT Photoresists
(radiation-sensitive resist composition containing phenolic dendrimer)
IT Resists
(radiation-sensitive; radiation-sensitive resist composition containing phenolic dendrimer)
IT 13965-03-2P, Bis(triphenylphosphine)palladium(II) dichloride
RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(in preparation of phenolic dendrimer for radiation-sensitive resist composition)
IT 2150-44-9P, Methyl 3,5-dihydroxybenzoate 65338-98-9P
135710-38-2P, Methyl 3,5-bis(allyloxy)benzoate 177837-80-8P
182058-69-1P 196298-31-4P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(in preparation of phenolic dendrimer for radiation-sensitive resist composition)

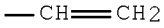
IT 75-07-0, Acetaldehyde, reactions 106-95-6, 3-Bromopropene, reactions 108-46-3, Resorcinol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of phenolic dendrimer for radiation-sensitive resist composition)
IT 196298-30-3P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(radiation-sensitive resist composition containing phenolic dendrimer)

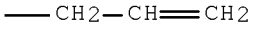
L22 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1998:592926 HCAPLUS Full-text
DOCUMENT NUMBER: 129:283338
ORIGINAL REFERENCE NO.: 129:57637a,57640a
TITLE: Calixarene and dendrimer as novel photoresist materials
AUTHOR(S): Haba, Osamu; Takahashi, Daisuke; Haga, Kohji; Sakai, Yoshimasa; Nakayama, Tomonari; Ueda, Mitsuru
CORPORATE SOURCE: Department of Human Sensing and Functional Sensor Engineering, Graduate School of Engineering, Yamagata University, Yamagata, 992, Japan
SOURCE: ACS Symposium Series (1998), 706(Micro- and Nanopatterning Polymers), 237-248
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Neg.-working alkaline developable photoresists based on calix[4]-resorcinarene (1) or calixarene dendrimer (2), a crosslinker, and a photoacid generator have been developed. Compound 2 was prepared by the condensation of compound 1 with 3,5-diallyloxybenzylbromide, followed by the removal of allyl groups. The resist consisting of 1 (70 wt%), a photoacid generator, diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate (DIAS) (10 wt%), and 4,4-methylenebis[2,6-bis(hydroxymethyl)-phenol] (MBHP) (20 wt%) as a crosslinker showed a sensitivity of 2.2 mJ-cm-2 and a contrast of 3.1 when it was exposed to 365 nm light and postbaked at 130°C for 3 min, followed by developing with a 0.1% aqueous tetramethylammonium hydroxide (TMAH) solution On the other hand, the resist formulated by mixing 2 (70 wt%), DIAS (10 wt%), and the crosslinker, 2,6-bis(hydroxymethyl)phenol (BHP) produced a clear neg. pattern by the exposure of 365 nm (10 mJ-cm-2) UV light, postbaked at 110°C for 3 min, and developed with a 0.3% TMAH aqueous solution
IT 196298-31-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in synthesis of calix[4]-resorcinarene dendrimer for photoresist material)
RN 196298-31-4 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 4,6,10,12,16,18,22,24-octakis[[3,5-bis(2-propen-1-yloxy)phenyl]methoxy]-2,8,14,20-tetramethyl- (CA INDEX NAME)

PAGE 1-A



PAGE 1-B





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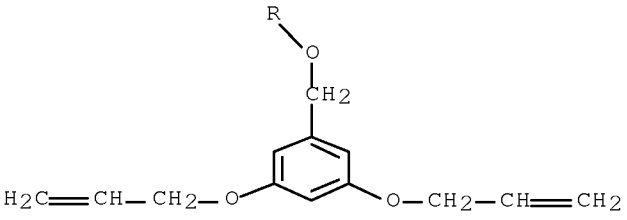
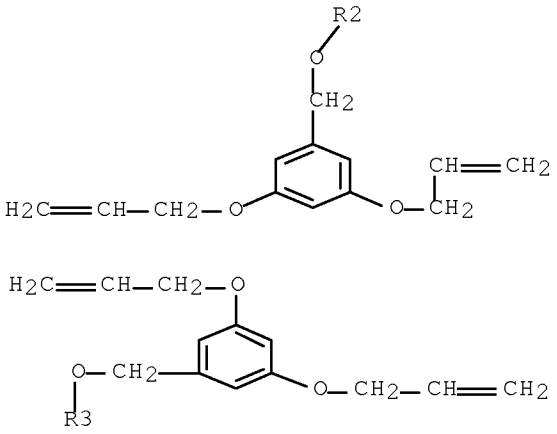
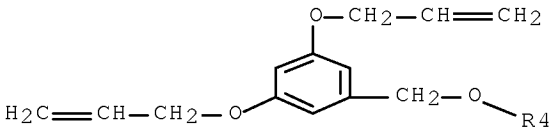


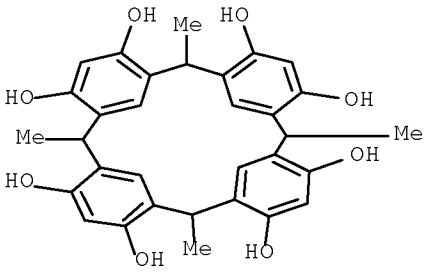
PAGE 3-A



PAGE 4-A



IT 65338-98-9, Calix[4]resorcinarene
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene and containing crosslinker and photoacid generator)
RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



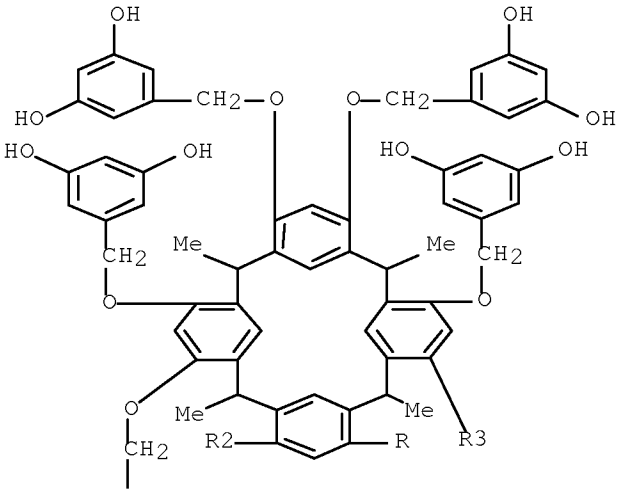
IT 196298-30-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene dendrimer and containing crosslinker and photoacid generator)

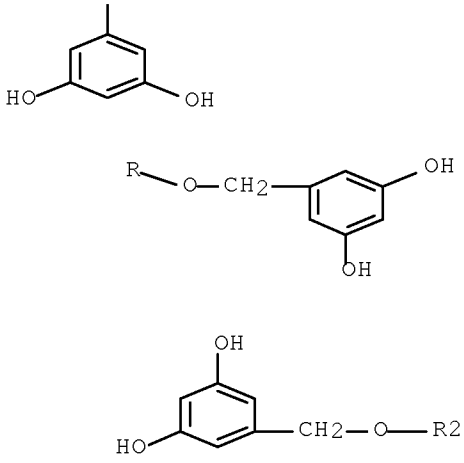
RN 196298-30-3 HCAPLUS

CN 1,3-Benzenediol, 5,5',5'',5''',5'''',5''''',5'''''',5'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxymethylene)]octakis- (9CI) (CA INDEX NAME)

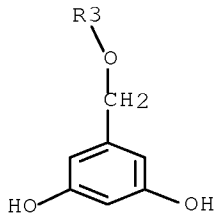
PAGE 1-A



PAGE 2-A



PAGE 3-A



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST photoresist calixarene dendrimer crosslinker photoacid generator

IT Crosslinking
(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene and containing crosslinker and photoacid generator)

IT Dendritic polymers
Oligomers
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene dendrimer and containing crosslinker and photoacid generator)

IT 2937-59-9, 2,6-Bis(hydroxymethyl)phenol 13653-12-8, 4,4'-Methylenebis[2,6-bis(hydroxymethyl)-phenol]
RL: TEM (Technical or engineered material use); USES (Uses)
(crosslinker; neg.-working alkaline developable photoresists based on calix[4]-resorcinarene dendrimer and containing crosslinker and photoacid generator)

IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; neg.-working alkaline developable photoresists based on calix[4]-resorcinarene dendrimer and containing crosslinker and photoacid generator)

IT 13965-03-2, Bis(triphenylphosphine)palladium dichloride
RL: CAT (Catalyst use); USES (Uses)
(in synthesis of calix[4]-resorcinarene dendrimer for photoresist material)

IT 196298-31-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in synthesis of calix[4]-resorcinarene dendrimer for photoresist material)

IT 135710-38-2P 177837-80-8P 182058-69-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in synthesis of calix[4]-resorcinarene dendrimer for photoresist material)

IT 65338-98-9, Calix[4]resorcinarene
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene and containing crosslinker and photoacid generator)

IT 196298-30-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(neg.-working alkaline developable photoresists based on calix[4]-resorcinarene dendrimer and containing crosslinker and photoacid generator)

IT 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; neg.-working alkaline developable photoresists based on calix[4]-resorcinarene and containing crosslinker and photoacid generator)

IT 2150-44-9, Methyl 3,5-dihydroxybenzoate
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with bromopropene in synthesis of calix[4]-resorcinarene dendrimer for photoresist material)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

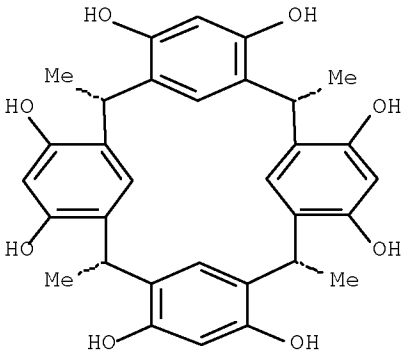
L22 ANSWER 16 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1998:499270 HCAPLUS Full-text
DOCUMENT NUMBER: 129:182011
ORIGINAL REFERENCE NO.: 129:36849a,36852a
TITLE: Three-component negative-type photoresist based on calix[4]resorcinarene, a cross-linker, and a photoacid generator
AUTHOR(S): Ueda, Mitsuru; Takahashi, Daisuke; Nakayama, Tomonari; Haba, Osamu
CORPORATE SOURCE: Department of Human Sensing and Functional Sensor Engineering Graduate School of Engineering, Yamagata University, Yonezawa, Yamagata, 992-8510, Japan
SOURCE: Chemistry of Materials (1998), 10(8), 2230-2234
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A neg.-working photoresist based on calix[4]resorcinarene (C-4-RA), 4,4'-methylenebis[2,6-bis(hydroxymethyl)phenol] (MBHP) as a cross-linker, and a photoacid generator diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate (DIAS) has been developed. A clear transparent film was obtained from a 25 weight% C-4-RA solution in 2-methoxyethanol. The photoresist consisting of C-4-RA (65 weight%), MBHP (25 weight%), and DIAS (10 weight%) showed a sensitivity of 4.3 mJ/cm2 and a contrast of 2.9 when it was exposed to 365 nm light and postbaked at 120° for 3 min, followed by developing with a 0.1% aqueous tetramethylammonium hydroxide solution at room temperature The mechanistic study on the formation of images is also discussed.

IT 74708-10-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(three-component neg.-type photoresist based on calix[4]resorcinarene, a cross-linker, and a photoacid generator)

RN 74708-10-4 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl-, stereoisomer (CA INDEX NAME)

Relative stereochemistry.

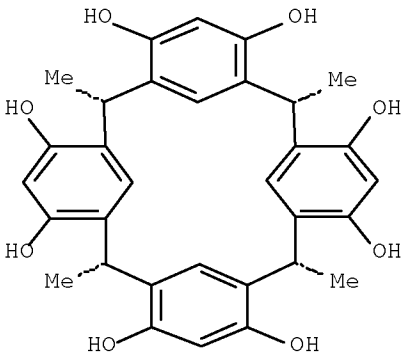


IT 211577-39-8P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(three-component neg.-type photoresist based on calix[4]resorcinarene, a cross-linker, and a photoacid generator)
RN 211577-39-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl-, stereoisomer, polymer with 5,5'-methylenebis[2-hydroxy-1,3-benzenedimethanol] (9CI) (CA INDEX NAME)

CM 1

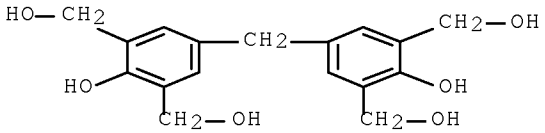
CRN 74708-10-4
CMF C32 H32 O8

Relative stereochemistry.



CM 2

CRN 13653-12-8
CMF C17 H20 O6

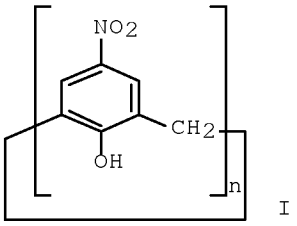


CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST photoresist calix resorcinarene crosslinker photoacid
IT NMR (nuclear magnetic resonance)
Photoresists
(three-component neg.-type photoresist based on calix[4]resorcinarene, a cross-linker, and a photoacid generator)
IT 13653-12-8, 4,4'-Methylenebis[2,6-bis(hydroxymethyl)phenol] 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(three-component neg.-type photoresist based on calix[4]resorcinarene, a cross-linker, and a photoacid generator)
IT 74708-10-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(three-component neg.-type photoresist based on calix[4]resorcinarene, a cross-linker, and a photoacid generator)
IT 211577-39-8P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(three-component neg.-type photoresist based on calix[4]resorcinarene, a cross-linker, and a photoacid generator)
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1998:277408 HCAPLUS Full-text
DOCUMENT NUMBER: 129:10630
ORIGINAL REFERENCE NO.: 129:2215a,2218a
TITLE: Positive-working chemical amplification-type photosensitive resin composition containing polyphenols and method for manufacturing resist images
INVENTOR(S): Kato, Koji; Hashimoto, Masahiro; Hashimoto, Michiaki
PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10115926	A	19980506	JP 1997-210284	19970805 <--
PRIORITY APPLN. INFO.:			JP 1996-221938 A	19960823 <--

OTHER SOURCE(S): MARPAT 129:10630
GI



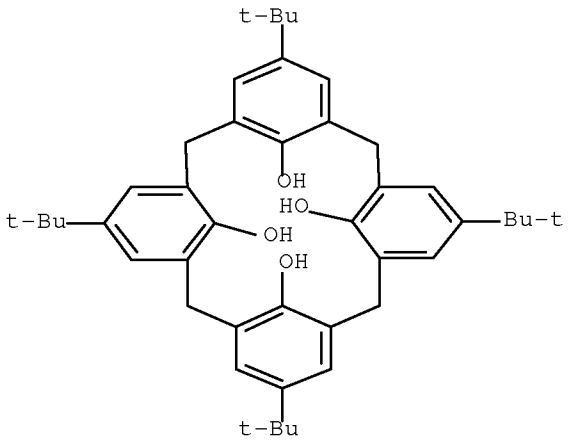
I

AB A pos.-type chemical amplification-series photosensitive resin composition contains (a) a resin soluble in aqueous alkali solution, (b) polynitrophenols (calixarene) (I; n = 4-8), (c) a compound generating an acid upon irradiation with active chemical ray, and (d) a compound possessing on the side chain, a group decomposable by acid which increases solubility in aqueous alkali solution by acid-catalyzed reaction. The content of low-mol. weight component having mol. weight ≤2,000 as polystyrene in the above composition is ≤10 weight%,. Also claimed is a method for preparing resist images, in which the coating of above resin composition is irradiated with active chemical ray and then developed. The composition provides resist patterns of good resolution and shows high sensitivity, high degree of resolution, and high heat resistance and is used for microprocessing of semiconductor devices.

IT 60705-62-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(pos.-working chemical amplification-type photosensitive resin composition containing polyphenols and method for manufacturing resist images)

RN 60705-62-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-tetrakis(1,1-dimethylethyl)- (CA INDEX NAME)

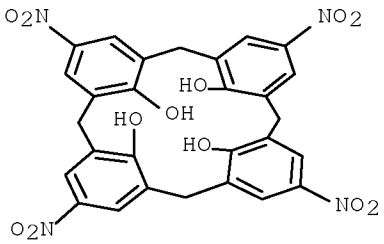


IT 109051-62-9P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working chemical amplification-type photosensitive resin composition containing polyphenols and method for manufacturing resist images)

RN 109051-62-9 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-tetranitro- (CA INDEX NAME)



IC ICM G03F007-039
ICS G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST pos working photoresist alkali sol; semiconductor device manuf photoresist; polyphenol photoresist chem amplification photoresist; calixarene pos working photoresist

IT Phenolic resins, preparation
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(novolak; pos.-working chemical amplification-type photosensitive resin composition containing polyphenols and method for manufacturing resist images)

IT Positive photoresists
Semiconductor devices
(pos.-working chemical amplification-type photosensitive resin composition containing polyphenols and method for manufacturing resist images)

IT Metacyclophanes
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working chemical amplification-type photosensitive resin composition containing polyphenols and method for manufacturing resist images)

IT 50-00-0, Formaldehyde, reactions 98-54-4 24979-70-2, Poly(p-vinylphenol)
RL: RCT (Reactant); RACT (Reactant or reagent)
(pos.-working chemical amplification-type photosensitive resin composition containing polyphenols and method for manufacturing resist images)

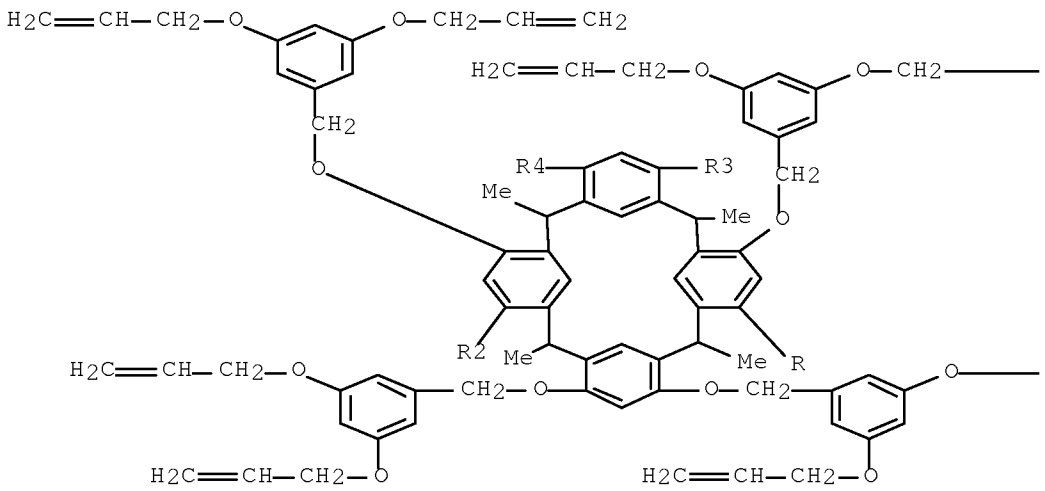
IT 60705-62-6P 68971-82-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(pos.-working chemical amplification-type photosensitive resin composition containing polyphenols and method for manufacturing resist images)

IT 24979-70-2DP, Poly(p-vinylphenol), tetrahydropyranyl-substituted 27029-76-1P, m-Cresol-p-cresol-formalin copolymer 60288-40-6P, Trimethylsulfonium trifluoromethanesulfonate 109051-62-9P 109081-46-1P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working chemical amplification-type photosensitive resin composition

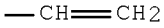
containing polyphenols and method for manufacturing resist images)
IT 9016-83-5, CN 19
RL: TEM (Technical or engineered material use); USES (Uses)
(pos.-working chemical amplification-type photosensitive resin composition containing polyphenols and method for manufacturing resist images)

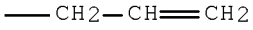
L22 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1997:582349 HCAPLUS Full-text
DOCUMENT NUMBER: 127:270381
ORIGINAL REFERENCE NO.: 127:52641a,52644a
TITLE: A positive-working alkaline developable photoresist based on benzylether dendrimer and a dissolution inhibitor
AUTHOR(S): Haba, Osamu; Haga, Kohji; Ueda, Mitsuru
CORPORATE SOURCE: Department of Human Sensing and Functional Sensor engineering, Graduate School of Engineering, Yamagata University, Yonezawa, 992, Japan
SOURCE: Polymeric Materials Science and Engineering (1997), 77, 426-427
CODEN: PMSEDG; ISSN: 0743-0515
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Dendrimers are polymers with a new mol. architecture, which is characterized by possessing central poly-functional core, from which arise successive layers of monomer units with a branch occurring at each monomer unit. They are monodisperse materials as well as the calixarene, and their mol. weight reaches ten thousands as well as the novolak resin. Thus the dendrimers are promising material for high sensitive photoresists. We designed a new dendrimer which contains phenol groups in the exterior to be soluble in aqueous alkaline solution and calix[4]resorcinarene in the interior to increase the number of the phenol group even in the lower generation. We now report new pos.-working alkaline developable photoresist based on this dendrimer.
IT 196298-31-4P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
RN 196298-31-4 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 4,6,10,12,16,18,22,24-octakis[[3,5-bis(2-propen-1-yloxy)phenyl]methoxy]-2,8,14,20-tetramethyl- (CA INDEX NAME)

PAGE 1-A

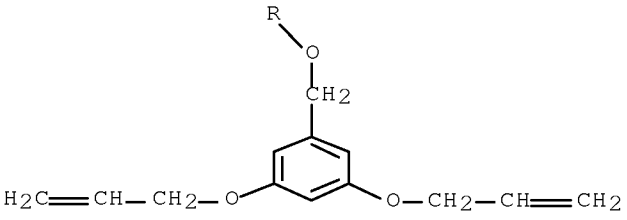


PAGE 1-B

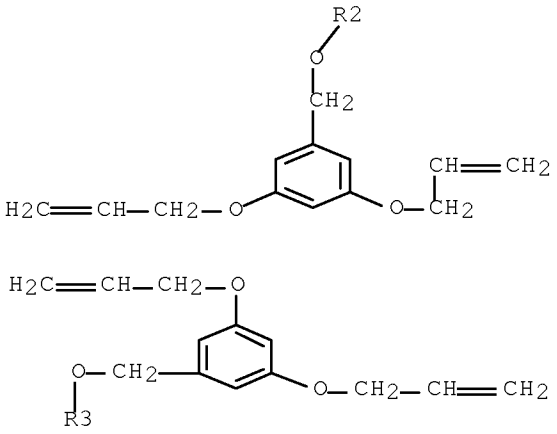




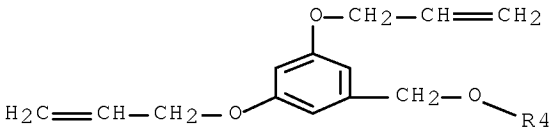
PAGE 2-A



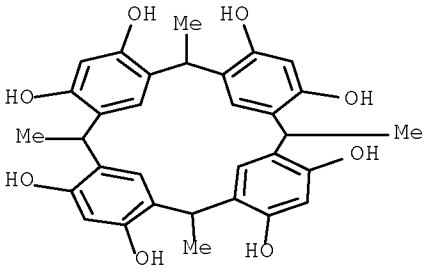
PAGE 3-A



PAGE 4-A



IT 65338-98-9, Calix[4]resorcinarene
RL: RCT (Reactant); RACT (Reactant or reagent)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)
RN 65338-98-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)

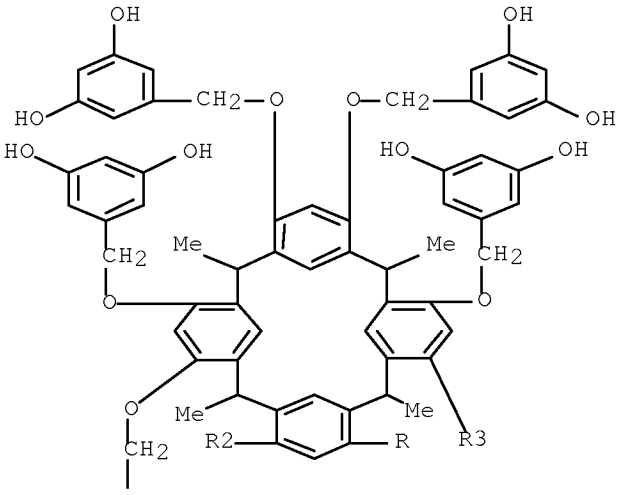


IT 196298-30-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)

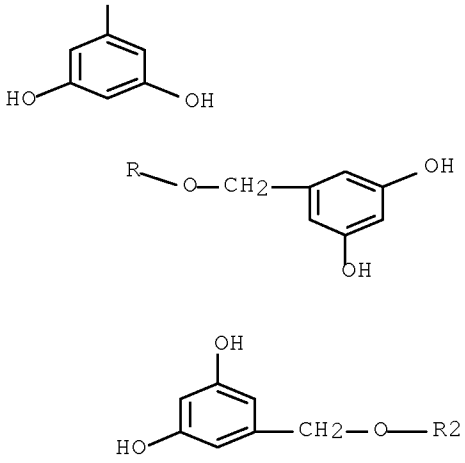
RN 196298-30-3 HCAPLUS

CN 1,3-Benzenediol, 5,5',5'',5''',5'''',5''''',5'''''',5'''''''-[(2,8,14,20-tetramethylpentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octayl)octakis(oxymethylene)]octakis- (9CI) (CA INDEX NAME)

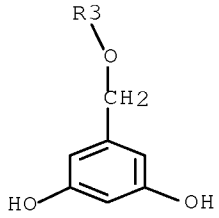
PAGE 1-A



PAGE 2-A



PAGE 3-A



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST pos alk developable photoresist benzylether dendrimer

IT Photoresists
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)

IT Dendritic polymers
RL: TEM (Technical or engineered material use); USES (Uses)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)

IT 84522-08-7, 2,3,4-Tris(1-oxo-2-diazonaphthoquinone-4-sulfonyloxy)benzophenone
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)

IT 135710-38-2 177837-80-8 182058-69-1
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)

IT 67-64-1, 2-Propanone, uses 75-59-2, Tetramethylammonium hydroxide 109-99-9, THF, uses 111-96-6, Bis(2-methoxyethyl)ether 123-91-1, 1,4-Dioxane, uses
RL: NUU (Other use, unclassified); USES (Uses)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)

IT 196298-31-4P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)

IT 106-95-6, 3-Bromopropene, reactions 540-69-2, Ammonium formate 558-13-4, Carbon bromide (CBr4) 584-08-7, Potassium carbonate (K2CO3) 603-35-0, Triphenylphosphine, reactions 2150-44-9, Methyl-3,5-dihydroxy-benzoate 7681-82-5, Sodium iodide (NaI), reactions 13965-03-2, Bis(triphenylphosphine)palladium dichloride 16853-85-3 17455-13-9, 1,4,7,10,13,16-Hexaoxacyclooctadecane 53208-22-3, Diazonaphthoquinone 65338-98-9, Calix[4]resorcinarene
RL: RCT (Reactant); RACT (Reactant or reagent)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)

IT 196298-30-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working alkaline developable photoresist based on benzyl-ether dendrimer and dissoln. inhibitor)

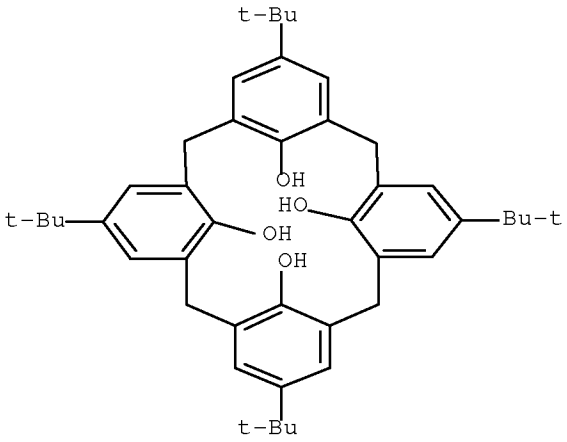
L22 ANSWER 19 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1994:334992 HCAPLUS Full-text
DOCUMENT NUMBER: 120:334992
ORIGINAL REFERENCE NO.: 120:58693a,58696a
TITLE: Photosensitive resin composition and resist image formation
INVENTOR(S): Kato, Koji; Kasuya, Kei; Isobe, Asao
PATENT ASSIGNEE(S): Hitachi Chemical Co Ltd, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05346664	A	19931227	JP 1992-154911	19920615 <--
PRIORITY APPLN. INFO.:			JP 1992-154911	19920615 <--

GI For diagram(s), see printed CA Issue.

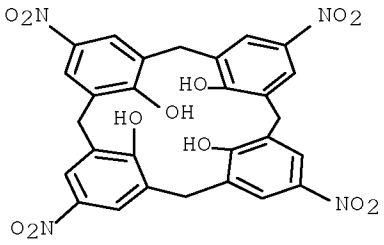
AB The composition comprises alkali-soluble novolak resin containing 0-10 weight% low mol. weight composition with mol. weight ≤2000 (as polystyrene), a quinonediazide compound, and phenolic cyclic compound I (n = 4-8). The composition is coated, exposed, and developed to form images. The composition shows high sensitivity, resolution, thermal-resistance, and suitable for pos.-working resist for integrated circuits.

IT 60705-62-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and nitration of)
RN 60705-62-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-tetrakis(1,1-dimethylethyl)- (CA INDEX NAME)



IT 109051-62-9P
RL: PREP (Preparation)
(preparation of, pos.-working photoresist containing)
RN 109051-62-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-

1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-tetranitro- (CA INDEX NAME)



IC ICM G03F007-022
ICS G03F007-023; G03F007-30; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
ST resist cyclic phenol compd; quinonediazide novolak resin resist
IT Phenolic resins, uses
RL: USES (Uses)
(novolak, pos.-working photoresist containing)
IT Resists
(photo-, containing novolak resin and quinonediazide compound and cyclic phenol derivative)
IT 27029-76-1, m-Cresol-p-cresol-formaldehyde copolymer 100346-90-5, m-Cresol-p-cresol-formaldehyde-2,5-xylenol copolymer 112504-03-7, m-Cresol-p-cresol-formaldehyde-3,5-xylenol copolymer
RL: USES (Uses)
(pos.-working photoresist containing)
IT 60705-62-6P 68971-82-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and nitration of)
IT 109051-62-9P 109081-46-1P
RL: PREP (Preparation)
(preparation of, pos.-working photoresist containing)

L22 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1992:560915 HCAPLUS Full-text
DOCUMENT NUMBER: 117:160915
ORIGINAL REFERENCE NO.: 117:27633a,27636a
TITLE: Positive-working photoresist composition
INVENTOR(S): Kawabe, Yasumasa; Tan, Shiro; Kuboyama, Reiko
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03279957	A	19911211	JP 1990-80027	19900328 <--

PRIORITY APPLN. INFO.: JP 1990-80027 19900328 <--

GI For diagram(s), see printed CA Issue.

AB The title pos.-working photoresist composition contains the 1,2-naphthoquinonediazido-5-(and/or-4-) sulfonic acid ester of the polyhydric compds., (I; R1 - R4 = H, OH, halo, alkyl, aryl, aralkyl, alkoxy, alkenyl, aryl, alkoxycarbonyl, CN, NO2; ≥1 of R2 - R4 is OH; R5, R6 = H, alkyl, aryl; X = single bond or OCH2; n = 3-8) or (II; R7 - R10 = same as R1 - R4 above; ≥ of R7 - R10 in OH; R11, R12 = H, alkyl, aryl; X = single bond, OCH2; n = 3-8) and an alkali-soluble resin. The photoresist has high sensitivity and give high resolution patterns.

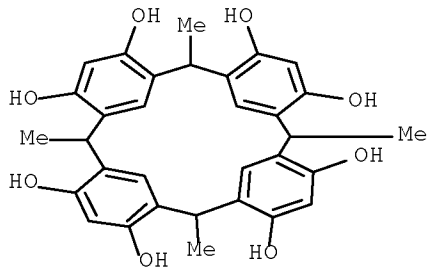
IT 65338-98-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction of, in preparation of photoresist component)

RN 65338-98-9 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol, 2,8,14,20-tetramethyl- (CA INDEX NAME)



IC ICM G03F007-022

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 76

ST pos photoresist naphthoquinodiazidosulfonate

IT Semiconductor devices

(fabrication of, high resolution photoresist for)

IT Resists

(photo-, containing naphthaquinonediazidosulfonic acid ester, pos.-working)

IT 1506-76-9P 65338-98-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction of, in preparation of photoresist component)

IT 143637-17-6P

RL: PREP (Preparation)

(preparation of, as photoresist component)

IT 143637-35-8P

RL: PREP (Preparation)

(preparation of, photoresist composition containing)

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=> d his nof

     (FILE 'HOME' ENTERED AT 11:22:26 ON 19 MAY 2009)

     FILE 'REGISTRY' ENTERED AT 11:22:42 ON 19 MAY 2009
L1              STRUCTURE UPLOADED
                D
L2           50 SEA SSS SAM L1
L3              STRUCTURE UPLOADED
                D

Uploading L2.str
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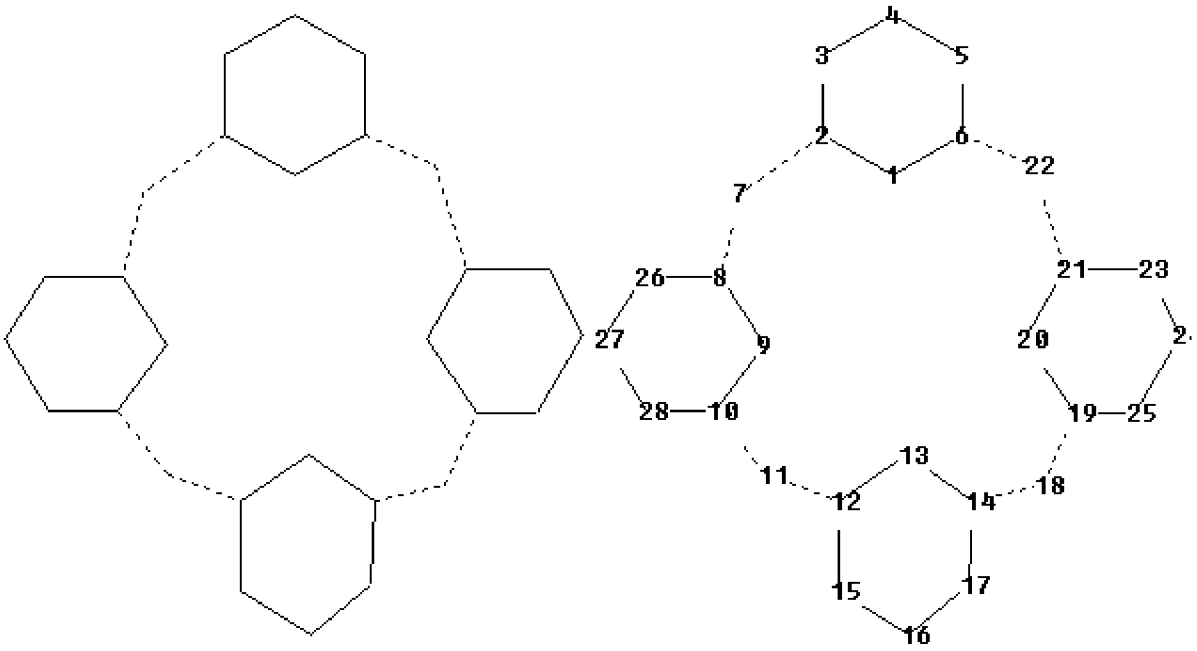



```
ring nodes :
1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23
24  25  26  27  28
ring bonds :
1-2  1-6  2-3  2-7  3-4  4-5  5-6  6-22  7-8  8-9  8-26  9-10  10-11  10-28  11-12
12-13  12-15  13-14  14-17  14-18  15-16  16-17  18-19  19-20  19-25  20-21  21-22
21-23  23-24
24-25  26-27  27-28
exact/norm bonds :
2-7  6-22  7-8  10-11  11-12  14-18  18-19  21-22
normalized bonds :
1-2  1-6  2-3  3-4  4-5  5-6  8-9  8-26  9-10  10-28  12-13  12-15  13-14  14-17
15-16  16-17  19-20  19-25  20-21  21-23  23-24  24-25  26-27  27-28
isolated ring systems :
containing 1 :


Match level :
1:Atom  2:Atom  3:Atom  4:Atom  5:Atom  6:Atom  7:Atom  8:Atom  9:Atom  10:Atom
11:Atom  12:Atom  13:Atom  14:Atom  15:Atom  16:Atom  17:Atom  18:Atom  19:Atom
20:Atom  21:Atom
```

22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom

L4   50 SEA SSS SAM L3
L5   17874 SEA SSS FUL L3
                SAVE L5 LEE282REGL2/A

     FILE 'HCAPLUS' ENTERED AT 11:25:33 ON 19 MAY 2009
L6   1 SEA ABB=ON PLU=ON US20070190451/PN
                SEL RN

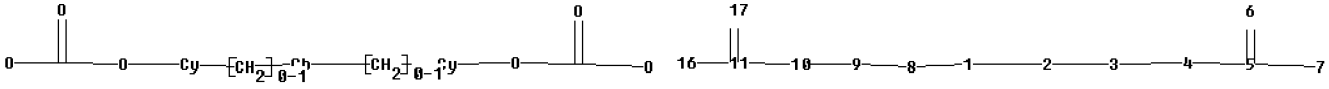
     FILE 'REGISTRY' ENTERED AT 11:25:51 ON 19 MAY 2009
L7   7 SEA ABB=ON PLU=ON (125748-07-4/BI OR 108-46-3/BI OR 280-57-9/
                BI OR 5292-43-3/BI OR 625122-37-4/BI OR 66003-78-9/BI OR
                75-07-0/BI)
L8   1 SEA ABB=ON PLU=ON L5 AND L7
                D RN

     FILE 'HCAPLUS' ENTERED AT 11:36:44 ON 19 MAY 2009
L9   6250 SEA ABB=ON PLU=ON L5
L10   QUE ABB=ON PLU=ON RESIST OR RESIST# OR PHOTORESIST? OR PHOTO
                (2A) RESIST?
L11   89 SEA ABB=ON PLU=ON L9 (L) L10
L12   3317 SEA ABB=ON PLU=ON L9 (L) PREP+ALL/RL
L13   3706 SEA ABB=ON PLU=ON L9 (L) RACT/RL
L14   33 SEA ABB=ON PLU=ON L11 AND L12 AND L13
L15   21 SEA ABB=ON PLU=ON L14 AND (AY<2006 OR PY<2006 OR PRY<2006)
                SAVE TEMP L15 LEE282HCAP/A

     FILE 'STNGUIDE' ENTERED AT 11:41:40 ON 19 MAY 2009

     FILE 'REGISTRY' ENTERED AT 11:45:51 ON 19 MAY 2009
L16   STRUCTURE UPLOADED
                D

Uploading L3.str



chain nodes :
1 2 3 4 5 6 7 8 9 10 11 16 17
chain bonds :
1-2 1-8 2-3 3-4 4-5 5-6 5-7 8-9 9-10 10-11 11-16 11-17
exact/norm bonds :
2-3 3-4 4-5 5-6 5-7 8-9 9-10 10-11 11-16 11-17
exact bonds :
1-2 1-8

Match level :
1:Atom 2:CLASS 3:Atom 4:CLASS 5:CLASS 6:CLASS 7:CLASS 8:CLASS 9:Atom
10:CLASS
11:CLASS 16:CLASS 17:CLASS
Generic attributes :
3:
Saturation   : Unsaturated

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9:
Saturation             : Unsaturated




L17           0 SEA SUB=L5 SSS SAM L16
L18           2 SEA SUB=L5 SSS FUL L16
                D SCAN
                SAVE TEMP L18 LEE282REGL3/A

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                D SCAN TI HIT
L20          21 SEA ABB=ON  PLU=ON  L15 AND L10
L21           2 SEA ABB=ON  PLU=ON  L19 AND L10
L22          20 SEA ABB=ON  PLU=ON  L20 NOT L21
                D QUE L21
                D L21 1-2 IBIB ABS HITSTR HITIND
                D QUE L22
                D L22 1-20 IBIB ABS HITSTR HITIND
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